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7. Abstract

This document identifies the TWRS transfer system compliance status of the double shell tank system. It also identified the current projects that are planned to during the transfer facility into compliance with the requirements of 40 CFR 265.193.

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Tank Waste Remediation Systems

Transfer Facility Compliance Plan

WHC-SD-WM-EV-094

Revision 0

Tank Farms Environmental Engineering

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TABLE OF FIGURES

1.0 INTRODUCTION

This document describes the environmental compliance deficiencies associated with the dangerous waste tank transfer systems managed by Westinghouse Hanford Tank Waste Remediation System (TWRS). It provides a compliance plan for addressing those identified deficiencies. Planned new facilities are not included as they are not yet managed by TWRS.

2.0 BACKGROUND

The Hanford Site produced plutonium for the nation's nuclear defense program for more than 40 years, until 1987. The chemical processing involved produced millions of gallons of radioactive chemical waste which is stored at the Hanford Site in 177 large underground tanks. The wastes can be described as highly caustic and composed of both insoluble solids (sludge) and salts either in solution or precipitated as salt cake. In addition to the radioactive constituents, organic degradation products, metallic elements, and salt anions are present. These are classed as hazardous wastes per Environmental Protection Agency (EPA) and Washington State Department of Ecology (Ecology) definitions.

The tanks, divided into 18 groups or "farms," are 6 to 10 ft below grade in the 200 East and 200 West Areas. There are 149 single-shell tanks (SST) constructed from 1943 to 1964 and 28 double-shell tanks (DST) constructed from 1968 to 1986. The last SST was taken out of service in 1980, and all of the DSTs are still in service. The Tank Farm facilities include the 242-A Evaporator which reduces the volume of dilute waste solutions needing storage. The evaporator was upgraded during an extended downtime and has recently been restarted. An upgrade program is underway to bring many of the DST facilities into compliance with regulatory requirements for secondary containment.

3.0 SCOPE

This transfer facility compliance plan supports the Federal Facility Agreement and Consent Order (Tri-Party Agreement) milestone M-32-04-T04 "Complete and Submit the Transfer Facility Compliance Plan." This milestone is limited to identifying the compliance status of waste transfer systems within the double-shell tank (DST) system, as related to secondary containment, leak detection in the secondary containment and the integrity of the secondary containment. Compliance will be assessed against the requirements of 40 Code of Federal Regulations (CFR) 265.193. Five currently planned projects will be replacing portions of the existing transfer system. The new transfer lines/units that will be installed under the five projects are not included in this report. Verification that these new transfer lines/units are compliant will be performed as part of those projects.

There are also various facilities such as catch tanks, several double contained receiver tanks, diversions boxes, and 244-AR which are already planned to be isolated. Since these facilities are already planned to be isolated they will not be included in this report. The integrity assessment program will be assessing these facilities as defined in the integrity assessment program plan.

The 204-AR waste unloading facility and the 241-A-350 lift station will not be addressed in this report. These facilities will have an integrity assessment performed that will identify the facility deficiencies. Based on the results of the integrity assessment, the upgrades will be identified.

4.0 REGULATORY ANALYSIS

The interim status regulations specifying the construction and operation of tank systems are found in 40 CFR 265, Subpart J "Tank Systems." Requirements pertaining to tank farm ancillary units including valve pits, diversion boxes, double-contained receiver tanks (DCRT), seal pots, transfer piping, and associated tank process pits are addressed in this section. This compliance plan addresses only the regulatory deficiencies in these ancillary units. The following summarizes sections of the 40 CFR 265 Subpart J that pertain to this compliance plan.

Tank systems must be provided with adequate secondary containment to prevent the release of dangerous waste to the environment [40 CFR 265.193 (a)]. Ancillary equipment such as piping must be provided with full secondary containment (e.g., pipe-in-pipe). The system must be provided with leak detection that detects accumulated liquid in the secondary containment within 24-hours. [40 CFR 265.193 (c)(3)]. In addition, waste transfer lines must be sloped or otherwise designed to remove spills for the secondary containment within 24-hours. [40 CFR 265.193(c)(4)]. Aboveground piping is exempt from secondary containment requirements provided that daily inspections are performed to insure that the lines are not leaking [40 CFR 265.193(f)(1)].

Vaults serve as secondary containment for components of the transfer system within the vaults, specifically transfer line jumpers. These vaults, include all process pits, diversion boxes, valve pits, and DCRT's. Vaults must be lined or coated with a material that is compatible with the waste and is impermeable [40 CFR 265.193(c)(1)]. Vaults must contain leak detection sufficient to detect any leak with a 24-hour period [40 CFR 265.193(c)(3)]. Secondary containment must be equipped to remove any leaks within 24-hours of detection [40 CFR 265.193(c)(4)].

5.0 PROJECT DESCRIPTION

Currently, there are five major projects planned that will up-grade the TWRS transfer system in the 200 East and West Areas. These projects will replace the majority of the existing DST transfer lines. These projects are W-028, W-058, W-087, W-211, and W-314. Figures 1 provides a description of the existing transfer system and figure 2 provides a graphical representation of the projects as currently planned. There are areas of the existing transfer system that require upgrades. These projects have not been identified to perform these upgrades at this time.

5.1 PROJECT W-028: AGING-WASTE TRANSFER LINES

This project provides a waste transfer route from B Plant to the aging-waste storage tank farms (241-AY & 241-AZ). One transfer line will be routed from B Plant to a diversion box provided by project W-028. From the W-028 diversion box, two lines will be routed to a diversion box provided by project W-058. Then from the W-058 diversion box, the lines end at the 241-AR-151 valve pit. Currently, compliant lines exist to transfer waste from 241-AR-151 to the aging-waste tanks.

5.2 PROJECT W-058: CROSS-SITE TRANSFER SYSTEM

The existing cross-site transfer system connects the 200 West Area DST's with the 200 East Area DST's. The existing system does not comply with current environmental regulations and portions of the line are nearing the end of their design life. These problems could potentially lead to a line failure, with the result of a long-term outage of the entire cross-site transfer system.

Project W-058 will replace the existing cross-site transfer system to ensure environmental compliance and operational reliability. Encased transfer lines will be routed from 241-SY tank farm in the 200 West Area to the 244-A OCRT in the 200 East Area. In addition to the encased lines, the project will provide three diversion boxes, a high-point vent station, booster pumps, cathodic protection, and leak detection instrumentation and controls. The new pipe-in-pipe system will contain leak detectors that will interlock to shut down the transfer pumps in the event of a leak.

The new piping system will span the approximate 6.5 miles from the 241-SY-A & B valve pits to the 244-A lift station. From the 244-A lift station existing piping will be used or new/up-graded piping will be provided under a separate project.

Figure - 1 Current Storage and Waste Transfer System

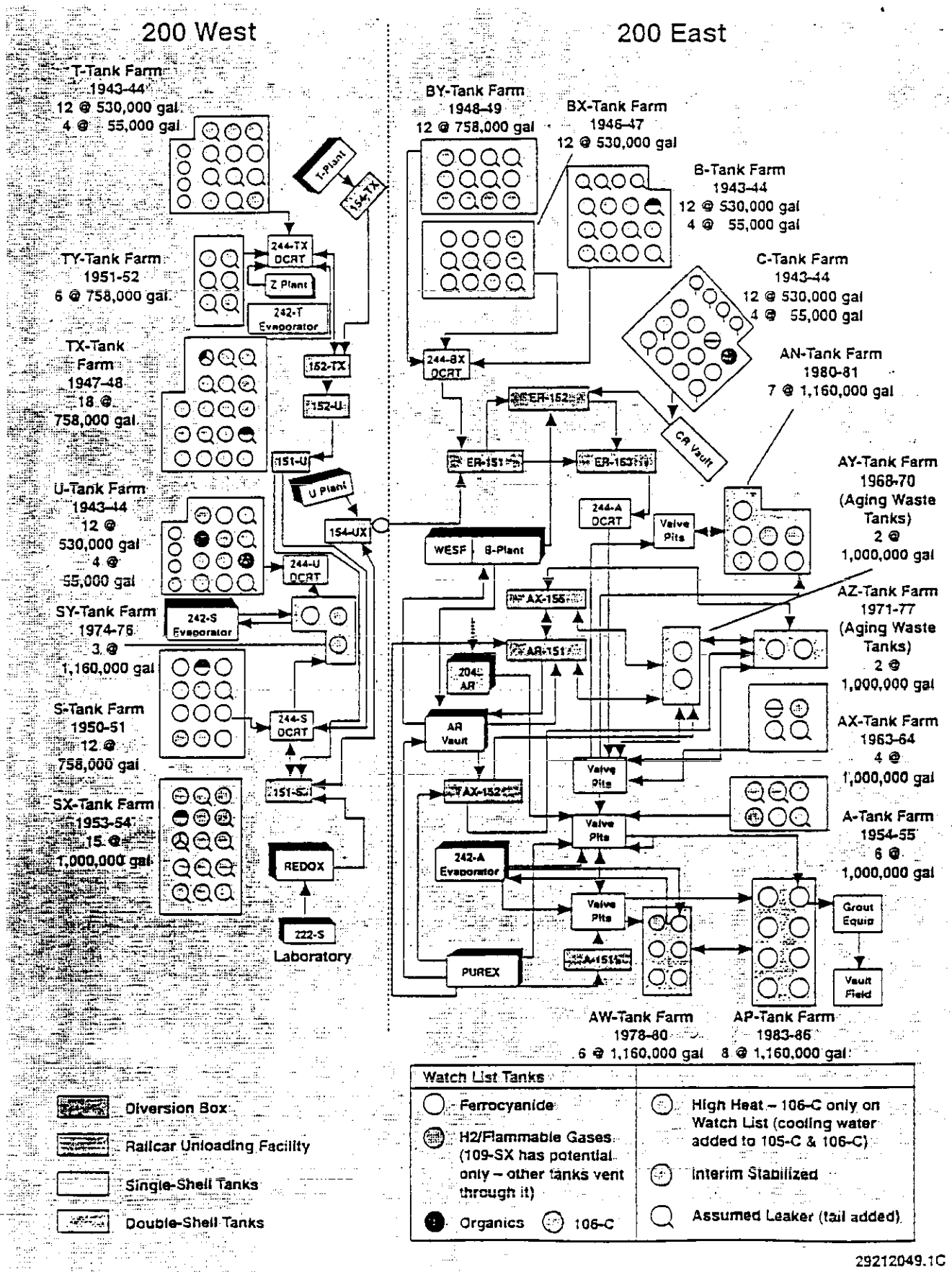
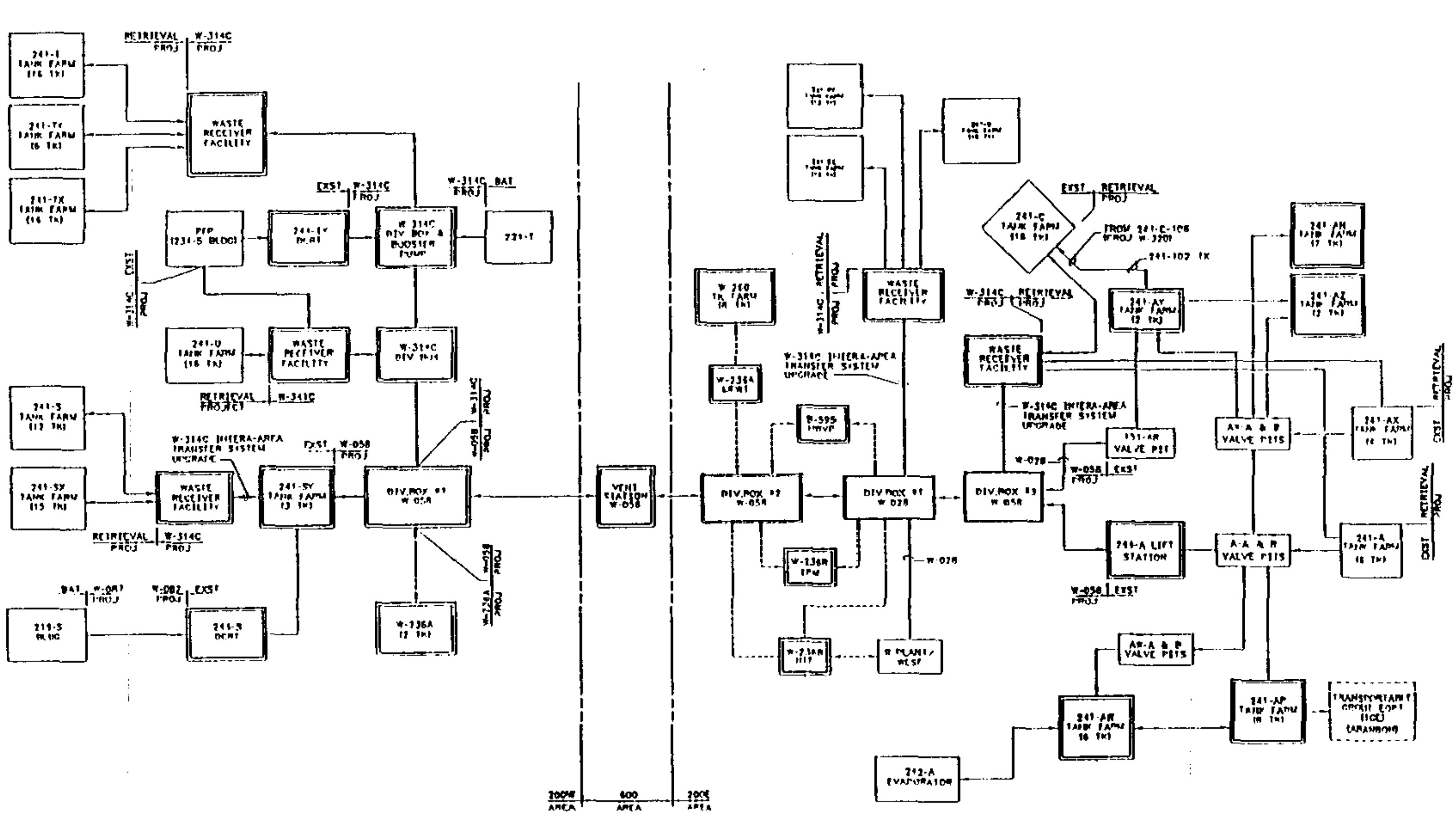


Figure - 2 Proposed Hanford Cross-Site Transfer System



PROPOSED HANFORD CROSS-SITE TRANSFER SYSTEM

W-058/W-028 CROSS-SITE TRANSFER SYSTEM
W-260 MULTI-FUNCTION WASTE STORAGE FACILITY
W-314C INTRA-AREA TRANSFER SYSTEM UPGRADES
W-236A MULTI-FUNCTION WASTE STORAGE FACILITY
W-236R INITIAL PRETREATMENT MODULE
W-087 RADIOACTIVE LIQUID WASTE LINE REPLACEMENT
B-595 HANFORD WASTE VITRIFICATION PLANT
20116 (HIT) COMPACT PROCESSING UNIT (CPSTOND)
HIT (HIT) TEST FACILITY (PART OF W-236R)

LEGEND

——— NEW ENCASED PIPING

—··— EXISTING PIPING

-------- FUTURE ENCASED PIPING

NOTES:

1. THE SINGLE LINE BETWEEN FACILITY BOXES INDICATES REQUIRED ENCASED PIPE OR PIPES SIZED TO SUPPORT TRANSFER ACTIVES.

2. DOUBLE LINE FACILITY BOX INDICATES DOUBLE CONTAINMENT (e.g. LINED DIVERSION BOXES, DOUBLE SHELL TANKS, PIPE/PIPE PIPING ETC).

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5.3 PROJECT W-087: 219-S TRANSFER SYSTEM

Project W-087 will support retrieval of waste from the 219-S lab facility. The existing transfer lines are mostly direct buried lines that are deficient with current environmental regulations. The project will install transfer lines between the 219-S facility to the 244-S DCRT, through a diversion box added by the project. From the 244-S DCRT existing compliant lines will transfer the waste to 241-SY.

5.4 PROJECT W-211: INITIAL TANK RETRIEVAL SYSTEMS

Project W-211 will provide systems for the retrieval of waste stored in ten DST's. These ten tanks include at least one tank from each of the six DST farms. To retrieve wastes, it is necessary to mix the solids and liquid contents prior to transfer to alternative storage, evaporation, pretreatment, or final disposal facilities. The Initial Tank Retrieval System (ITRS) will provide systems to mobilize the settled solids and to transfer wastes out of the tanks. The DST's have existing equipment in place that will require removal to allow installation of the new mixing and retrieval systems. Also upgrading the central pump pits and valve pits will be required.

5.5 PROJECT W-314: WASTE TRANSFER SYSTEM

Project W-314, as currently proposed, provides upgraded transfer line segments in the 200 West & 200 East Areas. The line segments will tie together processing plants and SST's to the DST system. A waste receiver facility (WRF) will be located to service each of the following SST complexes: T-farms, U-farm, S-farms, B-farms, A-farms and C-farm. The WRF's provide a 200,000 to 300,000 gallon staging area for waste being retrieved and routed from the SST farms.

In the 200 West Area, three WRF's and two diversion boxes/pump stations and several transfer lines will be installed. This will support waste transfers from T-plant, Z-Plant, and the SST tank farms; T-farms, U-farm and the S-farms. Transfers will lead to 241-SY valve pits where the waste can then be routed to the 200 East area via the replacement cross-site transfer system (project W-058).

In the 200 East Area, two WRF's and several upgraded transfer lines are planned to be installed. This equipment will support waste retrieval from the SST tank farms; B-farms, C-farm, and the A & AX farms. The waste from the SST's will then be routed into the DST system where it can be stored and/or processed.

Project W-314 will also be evaluating the feasibility of upgrading the existing transfer lines and diversion boxes associated with the DST tank farm complex in the 200 East Area. At this time the feasibility study is underway.

6.0 INTEGRITY ASSESSMENT

There is an ongoing effort to perform integrity assessments for all the TWRS waste transfer system. This integrity assessment program includes tanks as well as the tank ancillary equipment. The assessments of the tanks are currently underway, and some preliminary work has been done on the ancillary equipment. The majority of the integrity assessment activities for the ancillary equipment will be coordinated with the currently planned projects. The integrity assessment program will enter the pit at the same time upgrades are being performed. Specifics on how the integrity assessment will be performed can be found in WHC-SD-WM-AP-017, "TANK WASTE REMEDIATION SYSTEM TANK SYSTEM INTEGRITY ASSESSMENTS PROGRAM PLAN," Rev. 1.

7.0 FACILITIES DESCRIPTION AND COMPLIANCE ASSESSMENT

7.1 TRANSFER PIPING

7.1.1 Description

A network of underground pipelines are used to move waste between chemical processing plants, waste treatment facilities and underground storage tanks. Transfer lines are routed between various types of pits and diversion boxes and terminate inside those pits at nozzles. In the pits, routing jumpers can be attached to nozzles to connect numerous transfer lines. See figure 3 for a typical transfer line configuration inside of a tank farm.

Transfer lines currently support SST and DST tank farms. Many of these lines are part of the SST system, and are being isolated as the SST's are stabilized. These lines will not be addressed in this report. There are four projects planned to replace the majority of transfer lines that are part of the DST system. These lines installed by the projects will not be addressed in this report since they are not active systems at this time. This report will review the compliance of the remaining DST transfer lines that are not being replaced by the planned projects. These lines are listed in appendix A.

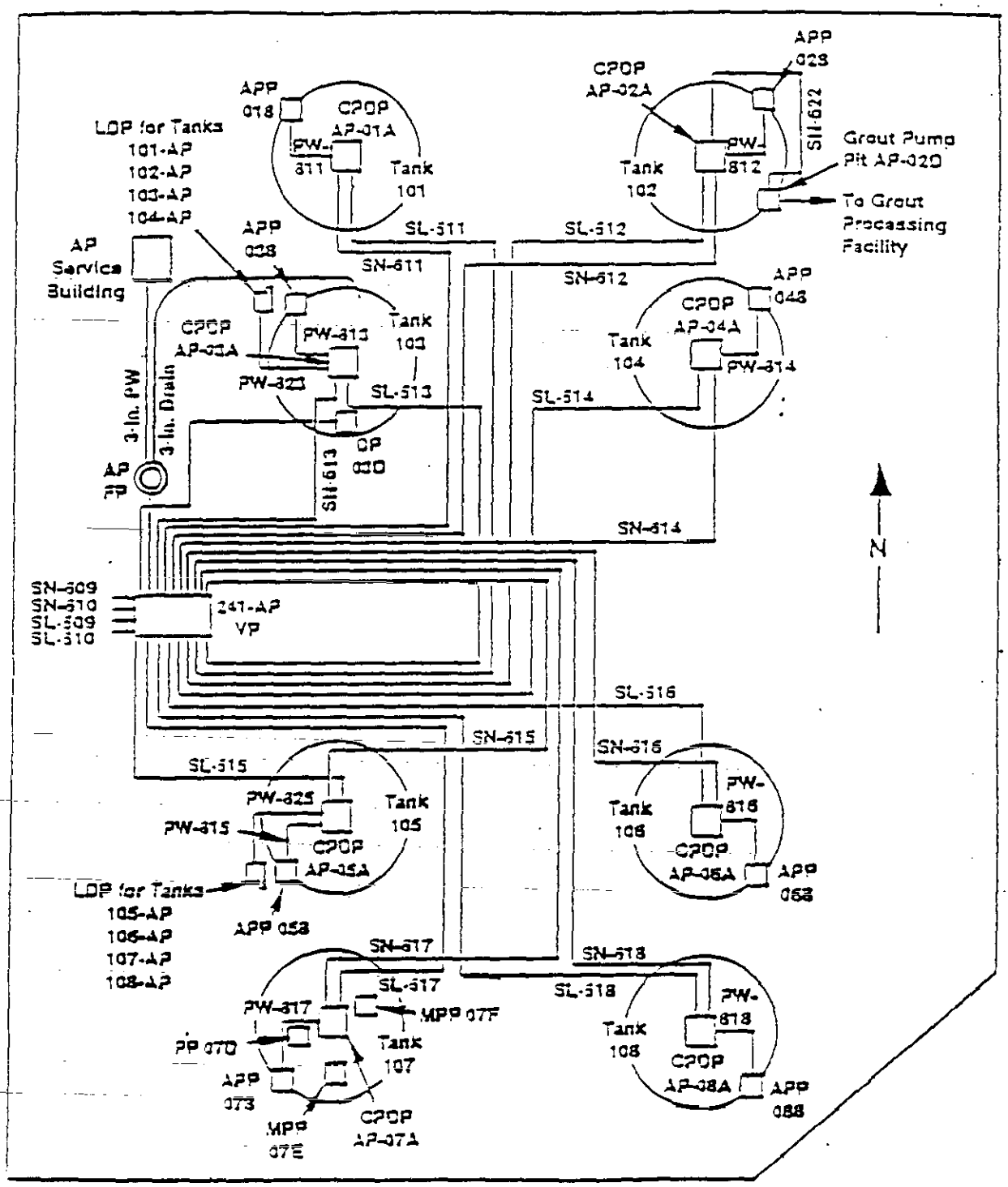
The pipelines in the DST System were constructed (and modified as needed) in intervals from the late 1940's to the present. The most common transfer lines are 2 or 3 inches in diameter. They are made from carbon steel or stainless steel. The transfer lines are normally provided with an encasement that is twice the diameter of the primary pipe. The encasement are either carbon steel or concrete. See figure 4 for a typical pipe-in-pipe encasement. The transfer lines are sloped towards a pit on one end of the transfer line. This allows any waste left in a transfer line to drain back to a designated area. This slope also allows waste in the secondary containment to drain to the low point of the line where a leak detection system is located.

The majority underground waste transfer lines are provided with cathodic protection., The steel of the buried pipe-in-pipe is subject to external galvanic corrosion resulting from chemical activity in the soil. The objective of the cathodic protection system is to provide the waste transfer system with a method that will minimize waste line failures due to corrosion.

7.1.2 Compliance Evaluation

7.1.2.1 LEAK DETECTION The transfer lines are sloped to allow leaks to travel to the low end of the transfer line where the leak detection systems are located. The waste is then drained from the piping secondary containment into a pit or catch tank. It then accumulates until it can be removed from the secondary containment system within the 24-hour requirement.

Figure - 3 Typical Waste Transfer Line Configuration



SL = Slurry Line
SN = Supernatant Line
PW = Process Waste Line

APP = Annulus Pump Pit
CPDP = Central Pump and Distribution Pit
DP = Drain Pit
FP = Flush Pit

LDP = Leak Detection Pit
MPP = Mixer Pump Pit
PP = Pump Pit
VP = Valve Pit

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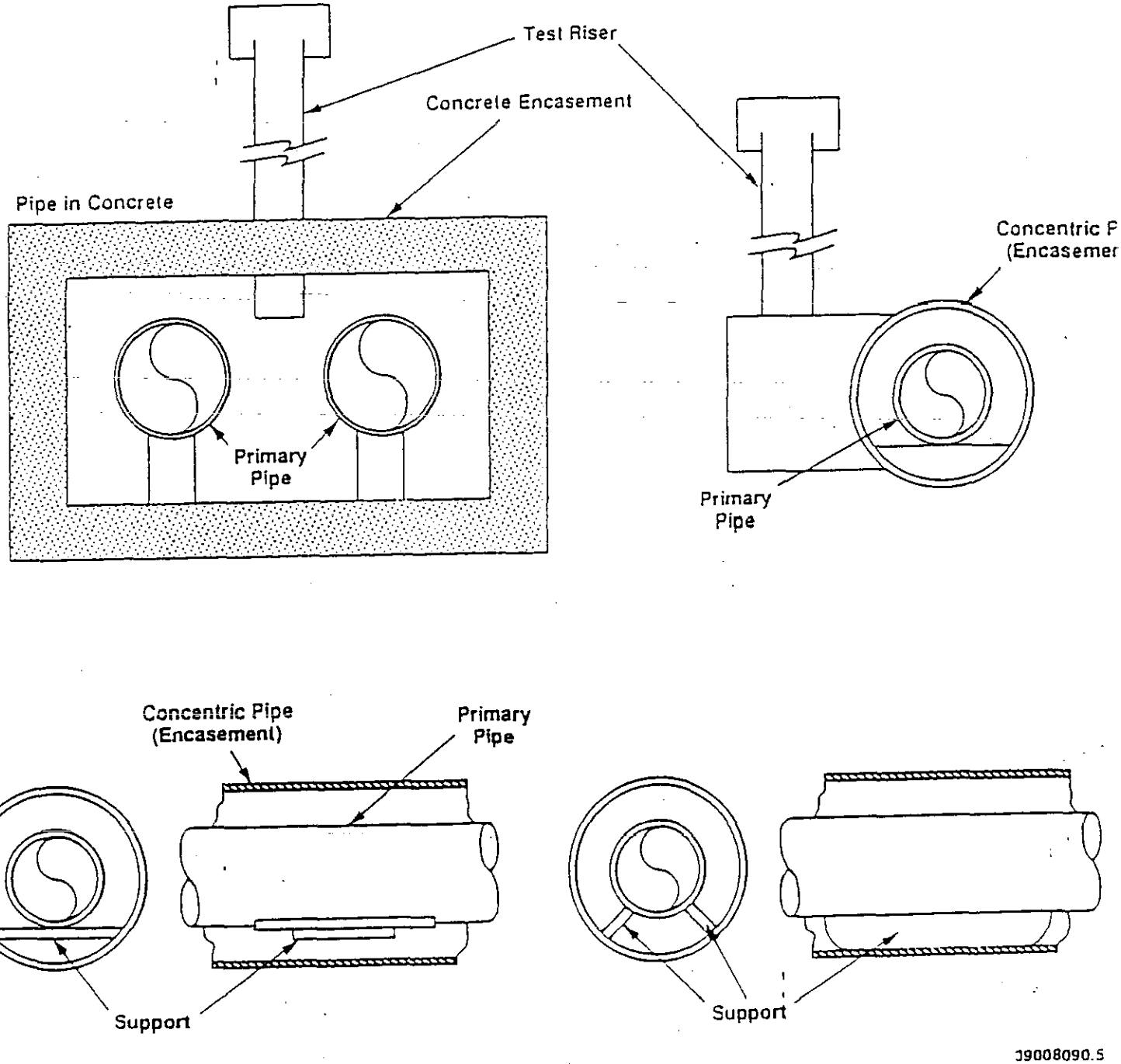
Figure 4 Typical Waste Transfer Piping Encasements



There are three types of leak detection systems used in the 200 Areas. The first method allows waste to drain directly into a pit where a conductivity leak detector is located. See sections on diversion boxes and tank process pits in this report for addition discussion on the leak detection systems in the pits. The second method is to place a conductivity leak detector in the secondary containment drain line, just prior to draining into a pit. The secondary containment drain line holds only a small volume of waste. This allows quick leak detection response times. The third method provides an air purge on the secondary containment. When waste accumulates in the secondary containment drain line, the back pressure on the air purge increases and activates the leak detector. This method also provides relatively quick leak detection response times. See figure 5 for a sketch of the above method two, and three leak detection configurations. In all three types of leak detection the response time to detect a leak is based on the location of the leak, the size of the leak, and how fast the leak travels to the leak detector. Based on these variables, a case could be made that a leak would not be detected within 24-hours as directed by the regulations.

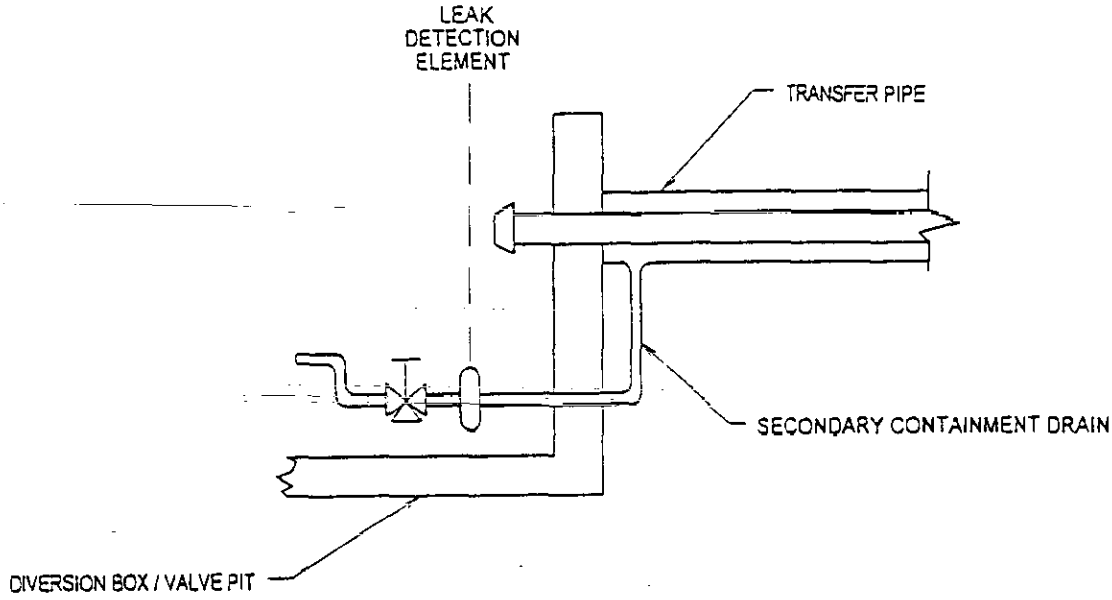
A fourth method of leak detection may be developed that will replace the conductivity leak detectors. The new leak detectors will be used in applications when flammable gasses may exist. These new detectors will meet requirements for use in flammable atmospheres. The existing conductivity leak detectors use a voltage the could spark with enough energy to ignite gasses if present in flammable concentrations.

7.1.2.1.1 **Recommended Action** Operability of the leak detection systems will be verified. If the current leak detectors are found to be inoperable, actions shall be taken to return those leak detectors to service.

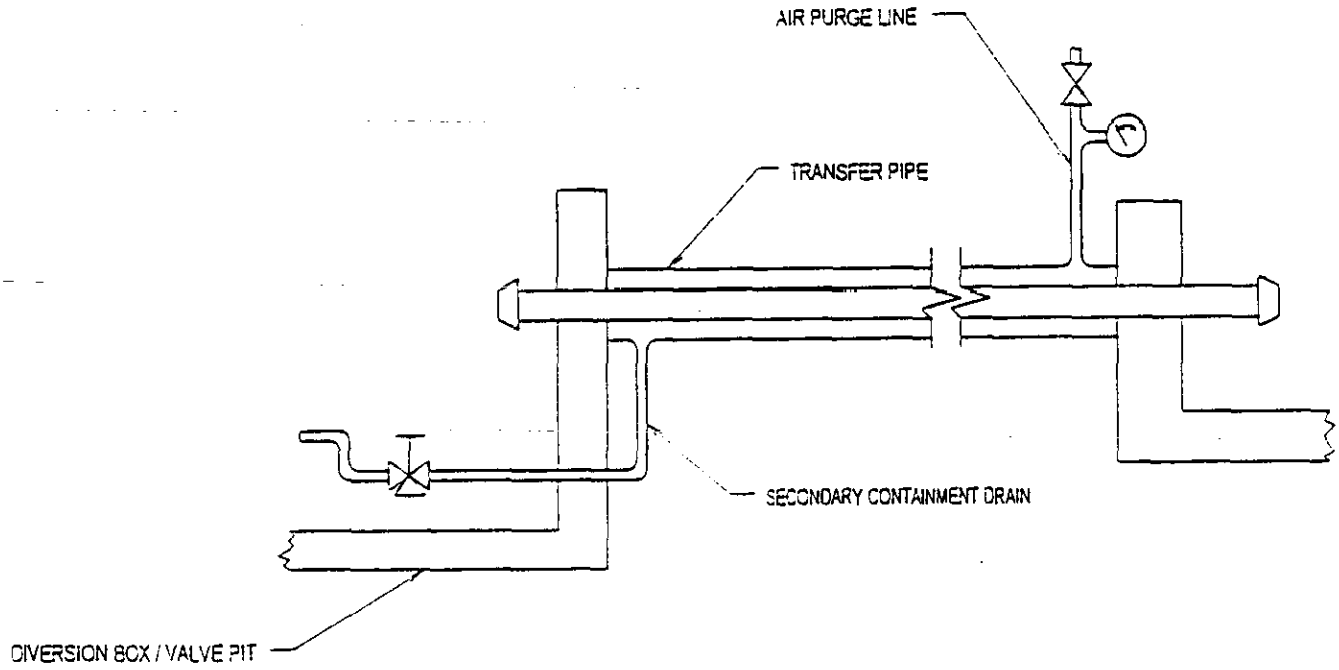
Leak tests will be performed each time a transfer line is used. These tests are not required more frequently than 12 months for a pipe-in-pipe encased line.

No actions will be taken to decrease the response time to detect leaks in the transfer piping secondary containment.

FIGURE - 5 Typical Waste Transfer Line Leak Detection



CONDUCTIVITY LEAK DETECTION IN ENCASEMENT DRAIN



AIR PURGE LEAK DETECTION IN ENCASEMENT DRAIN

7.1.2.1.2 Justification Providing a new design of leak detectors could increase the response times to small leaks but, the value added would not justify the exposure to employees.

7.1.2.2 Secondary Containment The majority of the existing transfer lines are provided with compliant secondary containment. The lines that are compliant use a pipe-in-pipe construction. A few transfer lines are provided with concrete encasement for secondary containment or are not provided with secondary containment at all. These transfer lines do not meet secondary containment requirements. In appendix A, the transfer lines and secondary containment material are identified.

7.1.2.2.1 Recommended Action The transfer lines as identified in appendix A, do not have adequate secondary containment, and will be removed from service by providing an isolation blank at the pipe nozzles. This will be performed after the planned projects are completed so that alternate waste routes will be available when the existing routes are isolated. In addition to the lines that lack proper secondary containment, some lines are routed to facilities that are no longer in-service or are planned to be removed from service. These lines will also be isolated.

7.1.2.2.2 Justification No justification required since regulations will be met.

7.1.2.3 Cathodic Protection The transfer lines that are provided with cathodic protection are listed in appendix A. The transfer lines that do not have cathodic protection are being isolated, with the exception of the 241-SY transfer lines. In most cases, transfer lines without cathodic protection are being isolated for reasons of inadequate secondary containment or the lines are routed to an isolated facility.

7.1.2.3.1 Recommended Actions An integrity assessment will be performed to verify the operability of the cathodic protection system. If a cathodic protection system is found to be inoperable, steps will be taken to place the system back in service.

Cathodic protection will be provided the 241-SY transfer lines and other active transfer lines that will continue to be used.

7.1.2.3.2 Justification. No justification is required since the regulations will be met.

7.2 DIVERSION BOXES AND VALVE PITS

7.2.1 Description

Diversion boxes and valve pits support the waste transfer activities in the 200 East and 200 West Areas. They provide a method to establish and change waste routings between the waste generating plants, treatment facilities and waste storage tanks (see appendix B). The transfer routes are established by connecting different transfer lines that enter into the diversion box or valve pit using jumpers.

Valve pits support individual tank farms, see figure 6 for typical valve pit. The jumpers used in these pits connect several transfer lines using one jumper. The waste route is established by opening or closing a series of valves that are associated with that jumper. Normally, only two transfer lines connect the tank farm to other transfer facilities outside of the tank farm. Jumpers provide an easy method to distribute waste from these two lines to a number of tanks within a tank farm.

Diversion boxes are used to route waste between processing plants and tank farms, see figure 7 for typical diversion box. Jumpers used in these boxes only connect two lines. These waste routes are established and are not frequently changed.

Both the diversion boxes and valve pits are reinforced concrete structures normally constructed below grade. The pits are closed with removable concrete cover blocks that usually extend a few inches above grade. The interior surfaces are painted with a protective coating. The floors are sloped to a concrete encased drain, which is routed to either a catch tank or to a nearby DST. Drain plugs and leak detectors are normally provided for each drain line.

Figure - 6 Typical Valve Pit

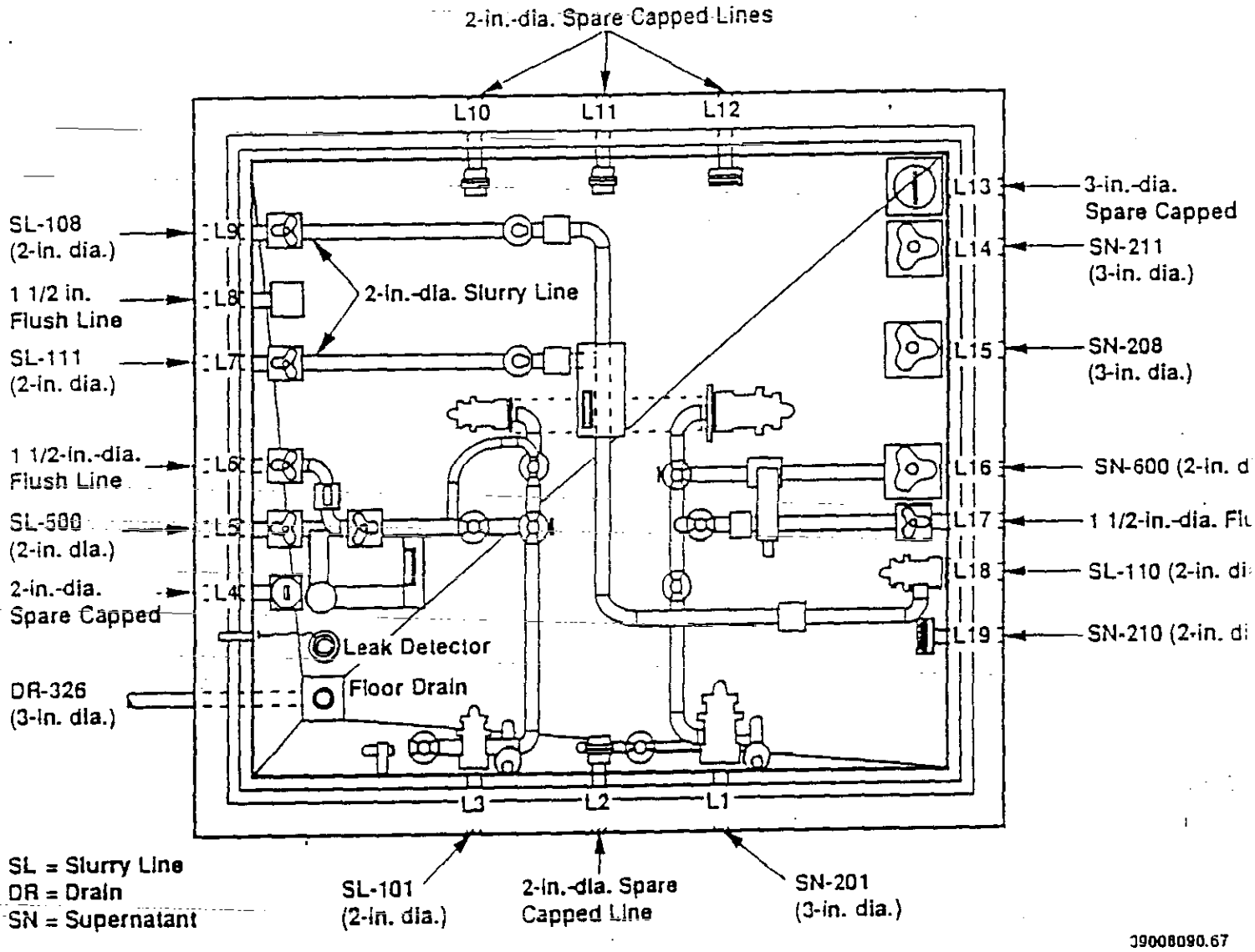
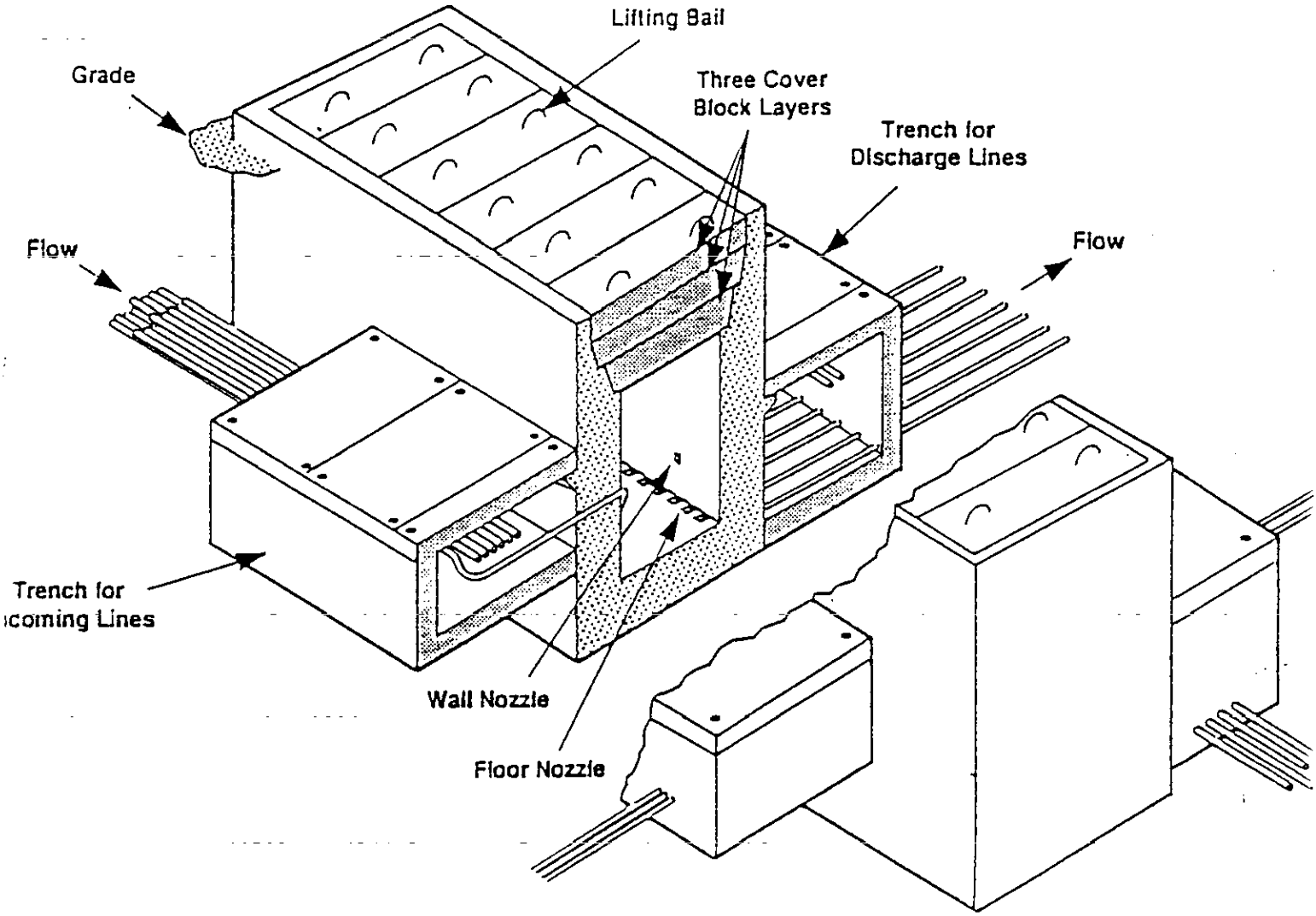


Figure - 7 Typical Diversion Box



7.2.2 Compliance Evaluation

7.2.2.1 Leak Detection The diversion boxes and valve pits use conductivity type leak detectors. They are designed to detect accumulated liquid. The liquid can be waste or rain water. The detectors are mounted approximately one inch off the pit floor. In the largest diversion boxes and valve pits approximately 13 gallons of liquid can accumulate on the pit floor before the liquid activates the leak detector. The leak detectors are interlocked with the transfer pumps so that when a leak is detected, the transfer pumps are shut down to prevent additional leakage or pit overfills. Once the transfer is stopped, the drain plug in the pit floor is removed to allow the liquid to drain into a DST. Removal of the liquid can be accomplished within the 24-hour requirement.

In a worst case scenario, only extremely small leaks of 9.2×10^{-3} gpm or less would exceed the 24-hour limit before a leak would be detected. Occasionally, the floor drain plugs have been removed or the drain plugs are not adequate to stop liquid flow. This allows liquid to flow directly into the tank without accumulating in the pit, or setting off the leak detector.

7.2.2.1.1 Recommended Actions To ensure that waste will accumulate on the pit floor and to ensure the leak detectors will be activated, floor drain plugs will be installed in all pits that are missing drain plugs. All inadequate drain plugs will be replaced. An inspection will be performed to identify pits that need floor drain plugs.

The existing leak detectors will be verified as operable. The current conductivity leak detection method will continue to be used, with the potential for not detecting small leaks within the 24-hour requirement.

To verify that the drain plugs and leak detectors are adequate, water must be added to the pit floor. This will ensure that the drain plug and leak detector will perform in concert to detect a leak.

The drain for diversion box 241-AR-151 is currently routed to 244-AR vault which is being isolated. This drain line will be re-routed or the diversion box will be isolated and replaced. Valve pits 241-A-A & B, and 241-AX-A & B drain to SST's. These drains must be re-routed or the valve pits must be isolated.

7.2.2.1.2 **Justification** Leaks of 9.2×10^{-3} gpm are extremely small. Providing a new design of leak detectors could increase the response times to smaller leaks but, the value added would not justify the exposure to employees.

7.2.2.2 **Secondary Containment** Diversion boxes and valve pits provide secondary containment for transfer piping contained within the pits. These pits are considered vault systems as describes in the regulations. The tank process pits are designed to contain 100% of the volume of the transfer lines that access the pits. Some pits are not designed to prevent run-on or infiltration of precipitation. However, all the pits are designed with sufficient capacity to contain precipitation from a 25-year, 24-hour rainfall event. The interior of the pits were constructed with an impermeable interior coating, normally Amercoat #33. Chemical-resistant water stops are not in place all joints. Due to the soil conditions and the deep water table in the 200 Area, the process pits are not subject to exterior hydraulic pressures. Therefore, external moisture barriers are not required.

As part of a review, it has been determined that the protective coatings cannot be verified as adequate for secondary containment. This means that unless a concrete vault is provided with a metal liner, it will not meet the requirements for secondary containment. Alternate methods to providing a metal liner will be evaluated.

7.2.2.2.1 **Recommended Actions** To ensure that the diversion boxes and valve pits meet the requirements for secondary containment, all the existing diversion boxes and valve pits must have a steel liner retro-fitted or the they will be isolated and replaced if the steel liner is infeasible.

7.2.2.2.2 Justification No justification is required since regulations will be met.

7.3 TANK PROCESS PITS

7.3.1 Description

There are six DST farms currently in existence. The 200 West area contains one tank farm, 241-SY with 3 DST's. The 200 East area contains five tank farms, 241-AN with 7 DST's, 241-AP with 8 DST's, 241-AW with 6 DST's, 241-AY with 2 DST's and 241-AZ with 2 DST's. Individual tanks within the tank farms provide specific functions that require specialized process pits. Typically, tanks use a combination of the following pits, see figure 8 for typical pit configuration on a DST.

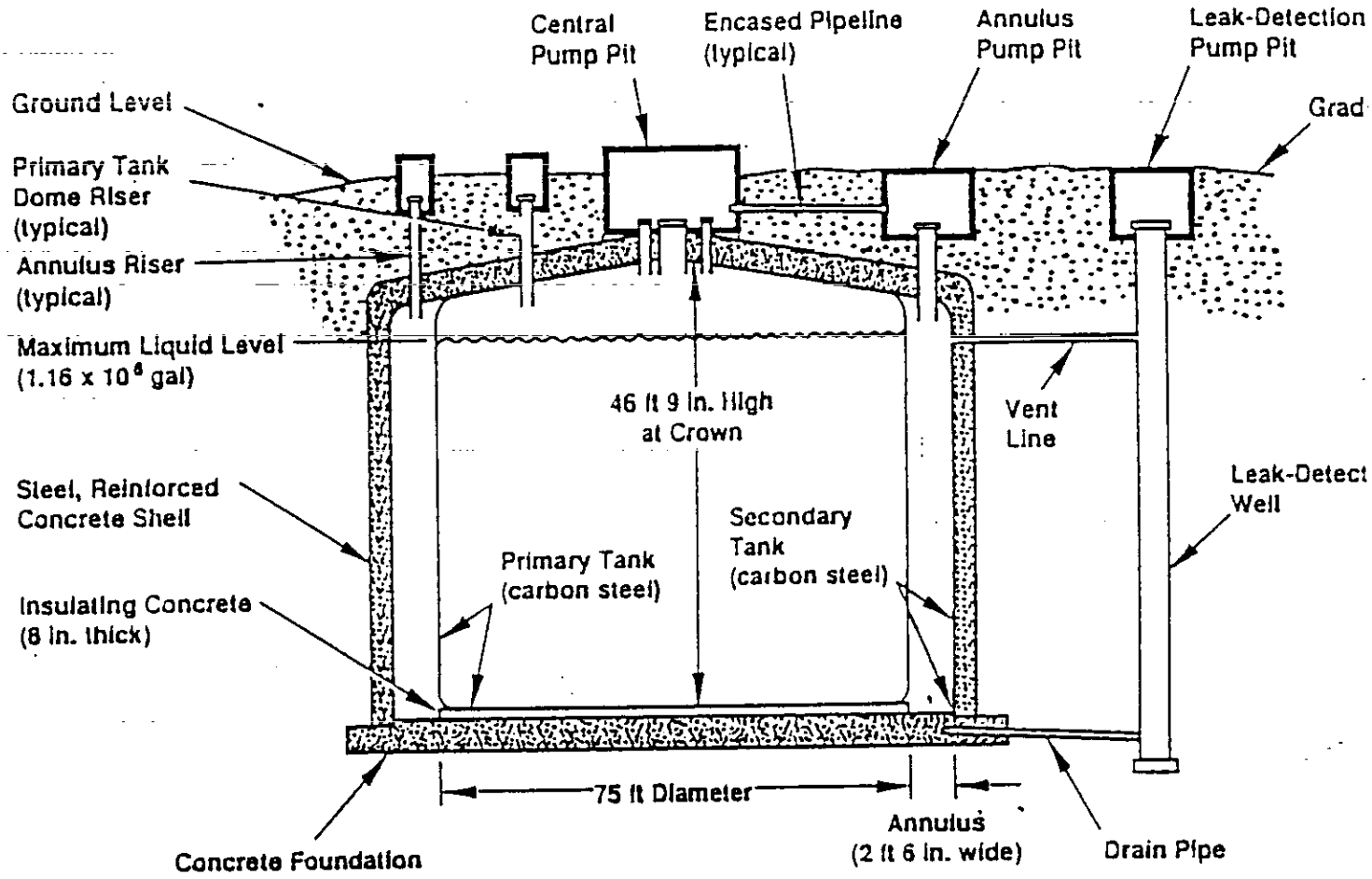
- Central Pump Pits
- Feed Pump Pit
- Drain Pits
- Saltwell Receiver Pit
- Sluice Pit
- Leak Detection Pit
- Annulus Pump Pit

Generically, the purpose of the tank process pits is to provide tank access to either receive or remove waste. To best support this function, the tank process pits are normally located directly over a tank. The tank process pits have one or more risers that penetrate the pit floor and the tank.

Leak detection pits and annulus pump pits are not part of the primary tank system or it's ancillary equipment. They are exempt from secondary containment requirements and will not be addressed in this report.

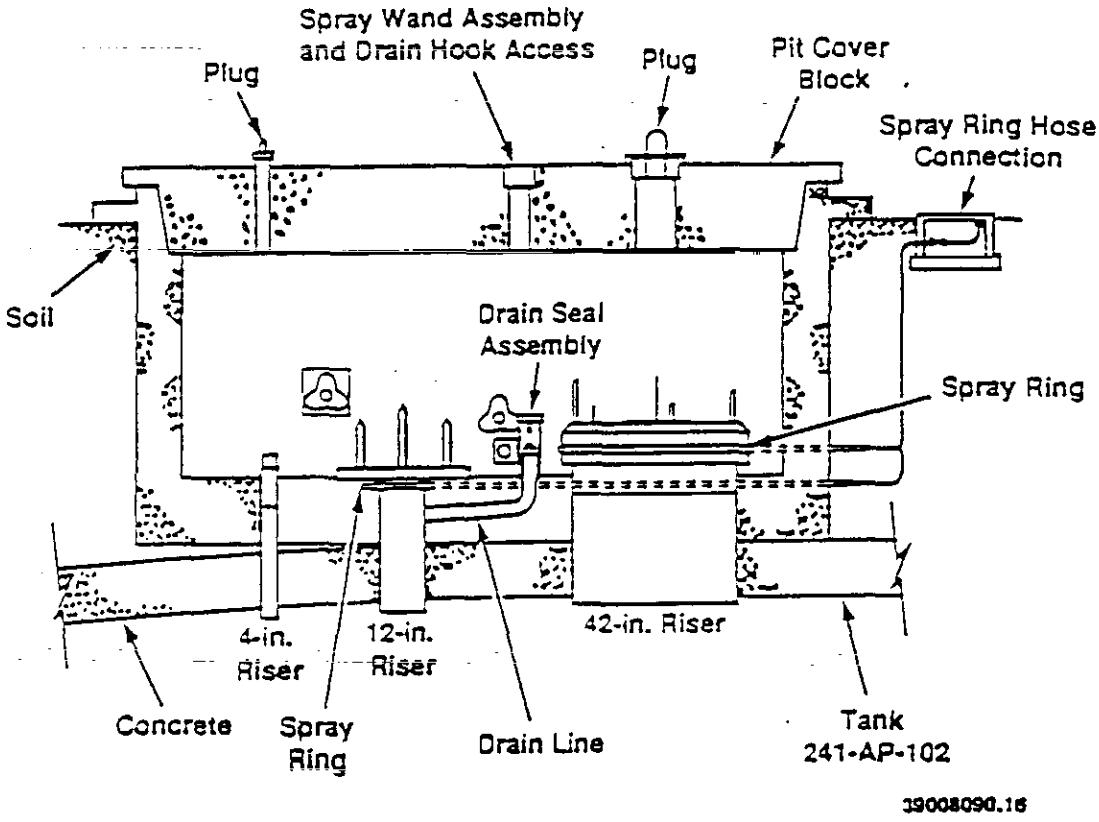
The tank process pits are constructed of reinforced concrete with the interior surface painted with a special protective coating (SPC). The pits are covered with removable concrete cover blocks that are also painted with a protective coating. The floors are sloped to a concrete encased drain, which is routed, below grade, to one of the risers inside the pit. This allows liquids in the pit to drain into the tank below. The drains normally had plugs installed, so that a conductivity leak detector can detect liquids in the pits. See figure 9 for the pump pit 241-AP-02A. This represents a typical pump pit.

Figure - 8 Typical Process Configuration of Process Pits



Not to Scale

Figure - 9 Pump pit 241-AP-02A



Pump Pit 241-AP-02A

7.3.2 Compliance Evaluation

7.3.2.1 Leak Detection The tank process pits use a conductivity type leak detector that is designed to detect accumulated liquid. The liquid can be waste or rain water. The detectors are mounted approximately one inch off the pit floor. In the largest tank process pits, approximately 23 gallons of liquid can accumulate on the pit floor before the liquid activates the leak detector. The leak detectors are interlocked with transfer pumps. When a leak is detected, the transfer pumps are shut down to prevent additional leakage. Once the transfer is stopped, the drain plug in the pit floor is removed to allow the liquid to drain into a DST. Removal of the liquid can be accomplished within the 24-hour requirement.

In a worst case scenario, leaks of 1.6×10^{-2} gpm or less would exceed the 24-hour limit before a leak would be detected. Occasionally, the floor drain plugs have been removed. This allows liquid to drain directly into the tank without accumulating in the pit, or setting off the leak detector.

7.3.2.1.1 Recommended Actions To ensure that waste will accumulate on the pit floor and to ensure leak detectors will be activated, floor drain plugs will be installed in all pits that are missing drain plugs. All missing and inadequate drain plugs will be replaced. An inspection will be performed to identify pits that need floor drain plugs.

The operability of the existing leak detectors will be verified. The current conductivity leak detection method will continue to be used, with the potential for not detecting small leaks within the 24-hour requirement.

To verify that the drain plugs and leak detectors are adequate, water must be added to the pit floor. This will ensure that the drain plug and leak detector will perform in concert to detect a leak.

7.3.2.1.2 **Justification** The tank process pits are located directly above the DST's. Installing a new leak detection system would require performing significant amounts of work in a high radiation zone. This is against ALARA (As Low As Reasonably Achievable) principals. Leaks of 1.6 x 10^{-2} gpm are extremely small. Providing a new design of leak detectors could increase the response times to smaller leaks but, the value added would not justify the exposure to employees.

7.3.2.2 **Secondary Containment** The tank process pits provide secondary containment for transfer piping contained within the pits. These pits are considered vault system as described in the regulations. The tank process pits are designed to contain 100% of the volume of the transfer lines that access the pits. The pits are not designed to prevent run-on or infiltration of precipitation, but they are designed with sufficient capacity to contain precipitation from a 25-year, 24-hour rainfall event. The interior of the pits were constructed with an SPC, normally Amercoat #33. Chemical-resistant water stops are not in place at all construction joints. The floors are sloped to aid in draining of the waste. Due to the soil conditions and the deep water table in the 200 Area, the process pits are not subject to exterior hydraulic pressures. External moisture barriers are not required.

7.3.2.2.1 **Recommended Actions** In order to verify the condition of the protective coatings a visual inspection will be performed. If there is significant damage to the pit, upgrades will be performed or the pit will be isolated. If the inspection reveals that no significant damage has occurred, performance of the upgrades will be evaluated based on dose levels, contamination levels inside the pit, and the expected use of the pit.

Tanks that are identified for retrieval will have the central pump pits retro-fitted with a stainless steel liner.

7.3.2.2.2 Justification The tank process pits are located directly above the DST's. Providing a steel liner or replacing the pit, would require performing significant amounts of work near a high radiation source. This is against ALARA principals.

An investigation will be performed to determine the possibility of obtaining a variance to continue operations using a tank process pit without an adequate pit liner.

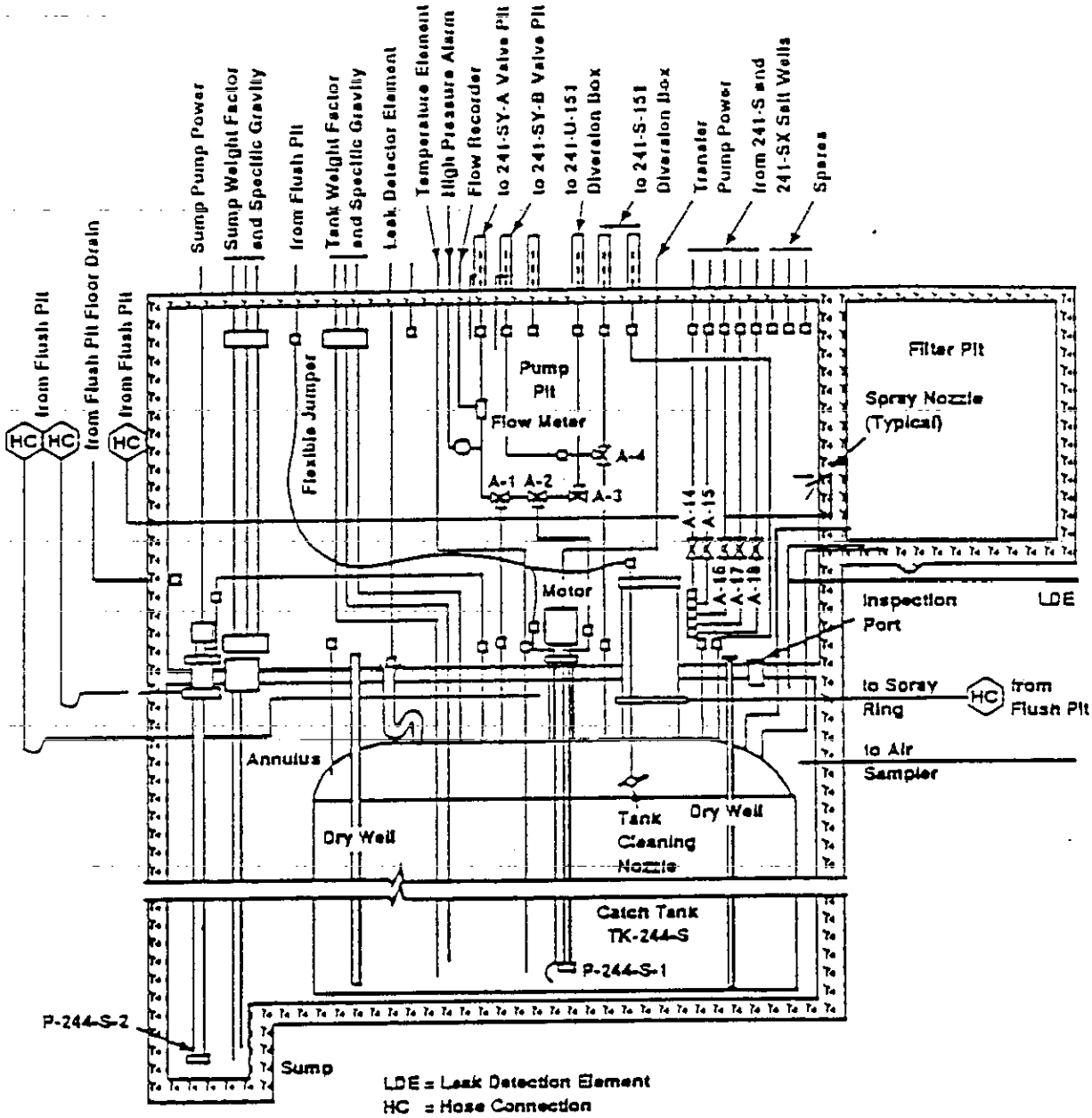
7.4 DOUBLE CONTAINED RECEIVER TANKS

7.4.1 Description

Double Contained Receiver Tanks (DCRT's) provide small capacity (16,000 to 31,000 gallon), short-term waste accumulation points for waste streams. These wastes are accumulated in the DCRT's until they are eventually transferred to a double-shell tank for storage. The DCRT's can also be used as pumping or lift stations. This is where a transfer is routed into the DCRT, then as the waste fills the tanks it is pumped to its final destination. This allows smaller pumps to transfer waste over a large distance. The DCRT can also be used to route waste through its pump pit without using the waste accumulation tanks.

With the exception of 244-A and 244-S all DCRTs in both the East and West Areas will be removed from service prior to the completion of the planned projects. The 244-S DCRT will be used to remove waste from the 219-S facility (W-087 project). After the completion of project W-314, the 244-S DCRT will be removed from service. It is expected that project W-314 will be completed by 2003. 244-A is the only DCRT that will remain in service after the completion of these projects.

Figure - 10 Typical DCRT Configuration



The DCRTs consist of an underground receiver tank surrounded by a concrete vault with a pump pit and a filter pit above the tank vault, see figure 10 for a typical DCRT. The primary tank is fabricated from either stainless or carbon steel depending on its specific function. The concrete vault is designed to contain 100% of the volume of the primary tank. The vault also contains a sump to collect any leak from the primary tank. The concrete vault is lined with 1/4" carbon steel, and are equipped with a pump pit and filter pit which are located above the primary tank. Each pit is provided with a floor drain that uses a seal loop to maintain differential pressure between the pits. The floor drain seal loop in the pump pit is provided with a leak detector that is used to detect both leaks inside the pit and to ensure the seal loop maintains an adequate water level. The seal loop leak detector in the filter pit is only used to maintain the water level in the seal loop.

The DCRT's employ dip tubes in the annulus sump as leak detection. Each annulus sump is equipped with three dip tubes (a long, medium, and short tube) that measure the weight factor and specific gravity of the sump liquid. An air purge system continuously holds back the liquid from entering the medium and long dip tubes, causing a pressure to exist in the tubes. The short pressure tube is open to the vapor space above the sump liquid. The medium and long tubes differential pressure correlates to a specific gravity. The long and short tubes differential pressure correlates to a weight factor. By dividing the measured weight factor by the measured specific gravity, the liquid level is determined.

Currently, the use of the DCRT's are not clearly defined. Once the planned projects are completed, the DCRT's may be only be used as diversion boxes. If this is the case the only upgrades that are required are those that pertaining to the pump pit. The remaining DCRT's will be isolated. In the event that the DCRT's will be used as originally designed, all the upgrades identified below will be required to be implemented.

7.4.2 Compliance Evaluation

7.4.2.1 **Leak Detection** The current leak detection in the tank vaults employ dip tubes in the annular sump. Any leaks from the primary tank can be detected within the 24-hour time limit. Any waste that accumulates in the sump must be removed within 24-hours of detection. Currently, waste that accumulates in the annulus sump cannot be removed within the 24-hour requirement.

The 244-S DCRT filter pit floor does have adequate leak detection that can detect any leak within the 24-hour requirement. However, the filter pit floor in the 244-A DCRT pit does not have any leak detection.

The pump pits are sloped and have conductivity leak detectors in their drains that can detect a leak within 24-hours. Any leak in the pump pit would gravity flow to the drain line that is routed into the DCRT tank. A drain plug or check valve must be inserted in the drain line to enable the pump pit leak detection to function properly. It is not clear from the drawings whether drain plugs in place. The drain lines are also provided with seal loops that contain water to provide an engineered barrier.

7.4.2.1.1 **Recommended Actions** The 244-S DCRT will only be used for a short term between the completion of project W-087 and W-314. Currently, no projects exist which are scoped to include 244-S upgrades. Therefore, upgrading the 244-S DCRT is not planned. The integrity assessment group will be performing a visual inspection of the DCRT's to identify gross problems with the DCRT's.

In the event that the 244-A DCRT will only be used as diversion box, only the upgrades to the pump pit leak detection is required.

To ensure that waste will accumulate on the pump pit floor and to ensure the leak detector will be activated, a floor drain plug will be installed. The operability of the leak detector in the 244-A DCRT will be verified. Prior to installing a plug in the pit drain, the water in the seal loop must be removed.

The following upgrades are only required if the 244-A DCRT tank is planned to be used once the currently planned projects are completed.

A pump needs to be permanently installed in the 244-A DCRT annular sump so that waste can be removed within a 24-hour time period after a leak is detected. The current dip tube system can still be utilized as long as a baseline level of liquid is maintained in the sump. This may be one to two inches depending upon the capabilities of the pump. This would allow any leak to be detected within a 24-hour time period. In addition, the operability of the dip tube leak detection needs to be verified.

A conductivity type leak detector must be installed on the 244-A DCRT filter pit floor. A plug or check valve must be inserted in the filter pit drain line. Prior to installing the drain plug, water in the seal loop must be removed.

7.4.2.1.2 **Justification** No justification is required since the regulations will be met.

7.4.2.2 **Secondary Containment** The DCRT vaults are designed and operated to contain 100% of the capacity of the largest tank within its boundary. Both the 244-S and 244-A DCRTs are tank systems within a carbon steel lined concrete vaults. The vaults are impermeable and compatible with the stored waste and will prevent migration of waste out of the system. The concrete vaults design prevents run-on, infiltration or precipitation from entering the secondary containment system.

The pump and filter pits are fully contained within a vault system similar in construction to tank vaults. The pump pits are directly involved in waste transfers and were lined with an SPC during initial construction, but they lack chemical-resistant water stops.

The filter pits are not directly involved in waste transfers, however, condensate from the filters could leak into the filter pit. This requires that the filter pit meet the same requirements of the pump pit. The floor drain in the filter pit is routed to the DCRT tank. The drawings are not clear as to whether SPC's are provided, and the filter pit also lack chemical-resistent water stops.

7.4.2.2.1 Recommended Actions The 244-S DCRT will only be used for a short term between the completion of projects W-087 and W-314. Currently, no projects exist which are scoped to include 244-S upgrades. Therefore, upgrading the 244-S DCRT is not planned.

In the event that the 244-A DCRT will only be used as diversion box, upgrades to the pump pit secondary containment are required. Also the tank and filter pit needs to be isolated.

To ensure that the pump pit meets the secondary containment requirements the pit must have a steel liner retro-fitted, or other adequate SPC. The DCRT tank will then be used only as secondary containment.

The 244-A DCRT needs to have all waste removed from the tank. Once the waste is removed, the 244-A filter pit needs to be removed from active service.

If the DCRT tank is used once the currently planned projects are completed, the following upgrade must also be performed.

The linings of the DCRT vault requires an evaluation as part of the integrity assessment program to determine the condition of the steel lining. The filter pit requires a steel liner retro-fitted.

7.4.2.2.2 Justification No justification is required since regulations will be met.

7.5 CLEANOUT BOXES

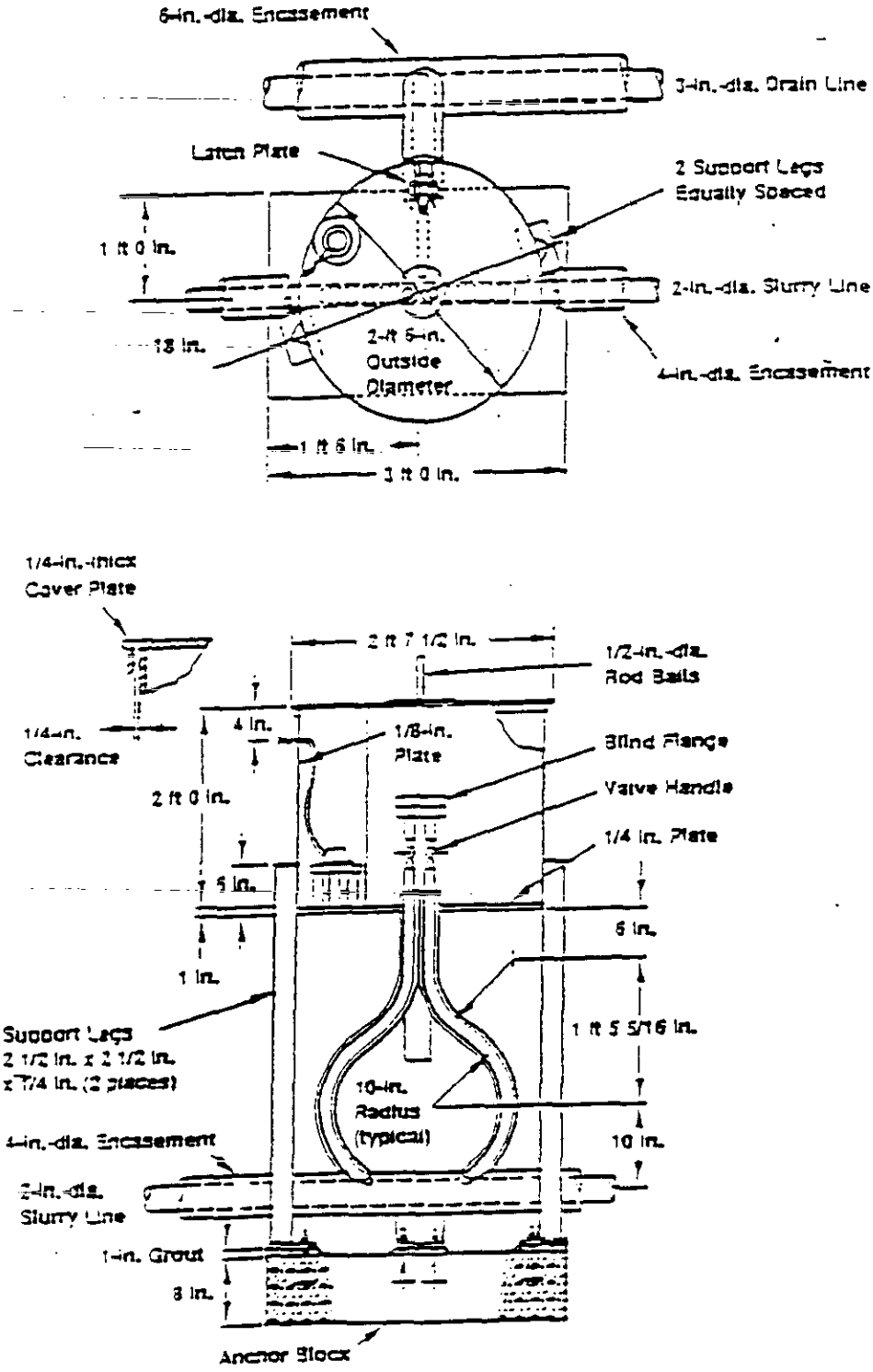
7.5.1 Description

A cleanout box (COB) is a metal structure which houses nozzles to clean out waste transfer lines, see figure 11 for typical COB. They are located on some of the encased transfer lines and drain lines in the A, AX, AY, AN, AZ, AW and SY tank farms. Slurry transfer lines are subject to plugging from solids settling even if the lines are flushed with water after a transfer has been completed. Cleanout boxes were installed so that transfer lines could be cleaned if a plug developed. Cleanout box operation was not satisfactory because of leakage and maintainability and their use has been discontinued.

The COB's have flush lines that are tied directly into the primary waste transfer lines. When the transfer pipes are under pressure the flush pipes are also under pressure. If the transfer line becomes plugged, a water hose was connected to the COB flush lines. Water was then pumped through the hose to dissolve the plug. The COB's contain a drain port that allows excess water to be removed from the plugged transfer line and transferred to another line. Most of the COB's have never been used, but some have had waste leak into them because of the direct ties to the waste transfer lines.

The COB's are positioned approximately 100 feet apart along the slurry transfer lines between evaporator facilities, valve pits, and storage tanks. The cleanout equipment consists of a mining head (which was installed either in the COB or in a valve pit nozzle), valves to control the flow of flush water, and hose and mining head which is inserted into the main waste transfer line. Hot water was then forced through the hose to dissolve the plug. In all COB's, except for tank farms A and AX, equipment and valves have been removed and connecting lines have been isolated.

Figure - 11 Typical Cleanout Box



7.5.2 Compliance Evaluation

7.5.2.1 **Leak Detection** All cleanout boxes in Tank Farms (A, AN, AW, AX, AY, AZ, and SY) have conductivity type leak detectors (LDE's) in the cleanout box floor. These LDE's are capable of detecting a leak within the 24-hour requirement. Leaks of approximately 3 gallons can be detected. In order for the LDE's to operate properly, drain plugs must be inserted into the drain ports so that waste will accumulate in the COB. The AN, AY, AZ, AW, and SY COB's have drain plugs in place. The status of the drain plugs in the A and AX COB's cannot be determined from the drawings. The SY cleanout boxes are either located on failed lines or direct buried transfer lines. These lines will be isolated as identified in Appendix A.

The AW cleanout boxes were upgraded as part of the 242-A Evaporator restart project. The leak detection and operational status of the COB's were upgraded to be compliant with current regulations.

Any leak in the COB's can be removed within the 24-hour requirement. The small size of the cleanout box floor and the position of the drain allows any leak to be removed once the drain plug is removed.

7.5.2.1.1 **Recommended Actions** The leak detection systems for all of the COB's, except for the SY COB's, need to be verified as operable. The transfer lines associated with the 241-SY COB's will no longer be used, therefore upgrades to the 241-SY COB's are not required.

Cleanout box drain lines must be plugged in order for the leak detection to work properly. All cleanout box drain plugs will be verified in place. This will be completed for all COB's except for the 241-SY COB's.

The 241-SY transfer lines that are provided with COBs will be permanently capped off. This will prevent the possibility of waste leaking into a deficient transfer line and prevent the misrouting of waste.

7.5.2.1.2 **Justification** No justification is required since the regulations will be met.

7.5.2.2 **Secondary Containment** There are two different designs of COB's in Tank Farms. The A and AX COB's contain pipe-in-pipe lines that lead from the main waste transfer line into the top section of the COB. The configuration of the COB's in AN, AW, AY, AZ, and SY tank farms contain flush lines leading from the waste transfer line into the top portion of the cleanout box. Secondary containment is provided by encasing both the flush lines inside one encasement.

Neither design of COB has adequate secondary containment in its upper portion. Leaks have occurred in the upper portions of the COB, this indicates that the flush lines have inadequate caps, valves etc. In addition, the covers on all COB's except for AW are not positively attached. A large leak in the COB's could leak through the cover into the environment due to the waste pressure in the waste transfer lines.

7.5.2.2.1 **Recommended Actions** As part of the integrity assessment program, the COB's will be inspected for evidence of leaks, with the exception of the 241-SY COB's.

For all the COB's that have leaked, the flush lines entering the upper portion of the COB will be capped or re-capped. The cap shall be adequate for the working pressures of the transfer lines. In addition to capping the lines running into the COB's, the cover plate must be modified to prevent waste from entering the environment. This has been accomplished by modifying the COB covers so that they can be screwed down, as previously done with the 241-AW COB's.

The A and AX COB's do not require modification to the COB cover if a seal can be provided for the flush line and the flush line encasement. The encasement cap must provide secondary containment to the flush line cap, and be adequate for the working pressure of the waste transfer line. The AW cleanout boxes have already been upgraded.

The SY tank farm cleanout boxes are located on deficient transfer lines that will no longer be used. Since the COB's will be taken out of service, upgrades are not required.

The AW cleanout boxes were upgraded as part of the 242-A evaporator restart. These COBs are currently in compliance. It is recommended that operational status of the secondary containment system is verified as part of the integrity assessment.

7.5.2.2.2 Justification No justification is required since the regulations will be met.

7.6 SEAL POTS

7.6.1 Description

Seal pots receive condensate drained from tank ventilation systems while maintaining a seal. This seal prevents either unfiltered ventilation air from escaping to the environment, or allowing outside air to be drawn into the ventilation system (see figure 12 for a typical seal pot). Condensate collected in the seal pots is returned to the tanks through dedicated drain lines. Condensate from several sources can collect in a seal pot and then drain through the overflow line to a final receiver tank. The seal in the seal pots is provided by water standing in the pot above the bottom of the inlet drain lines. The depth of water in the seal pot is designed to maintain a liquid level that exceeds the maximum vacuum drawn by the ventilation system exhaust fan.

Seal pots are provided for both primary tank ventilation systems and annulus ventilation systems. The liquids condensing in primary exhaust systems could be contaminated, causing them to be considered dangerous waste. Therefore, the primary ventilation seal pot must comply with secondary containment requirements. There are nine DST primary ventilation seal pots. The annulus ventilation seal pots are part of the tank secondary containment system. Therefore, the annulus seal pots are exempt from secondary containment requirements.

The remaining seal pots are not part of the DST system. The seal pots that are part of the DST secondary containment system use water as an engineered barrier, this may require that a variance be obtained.

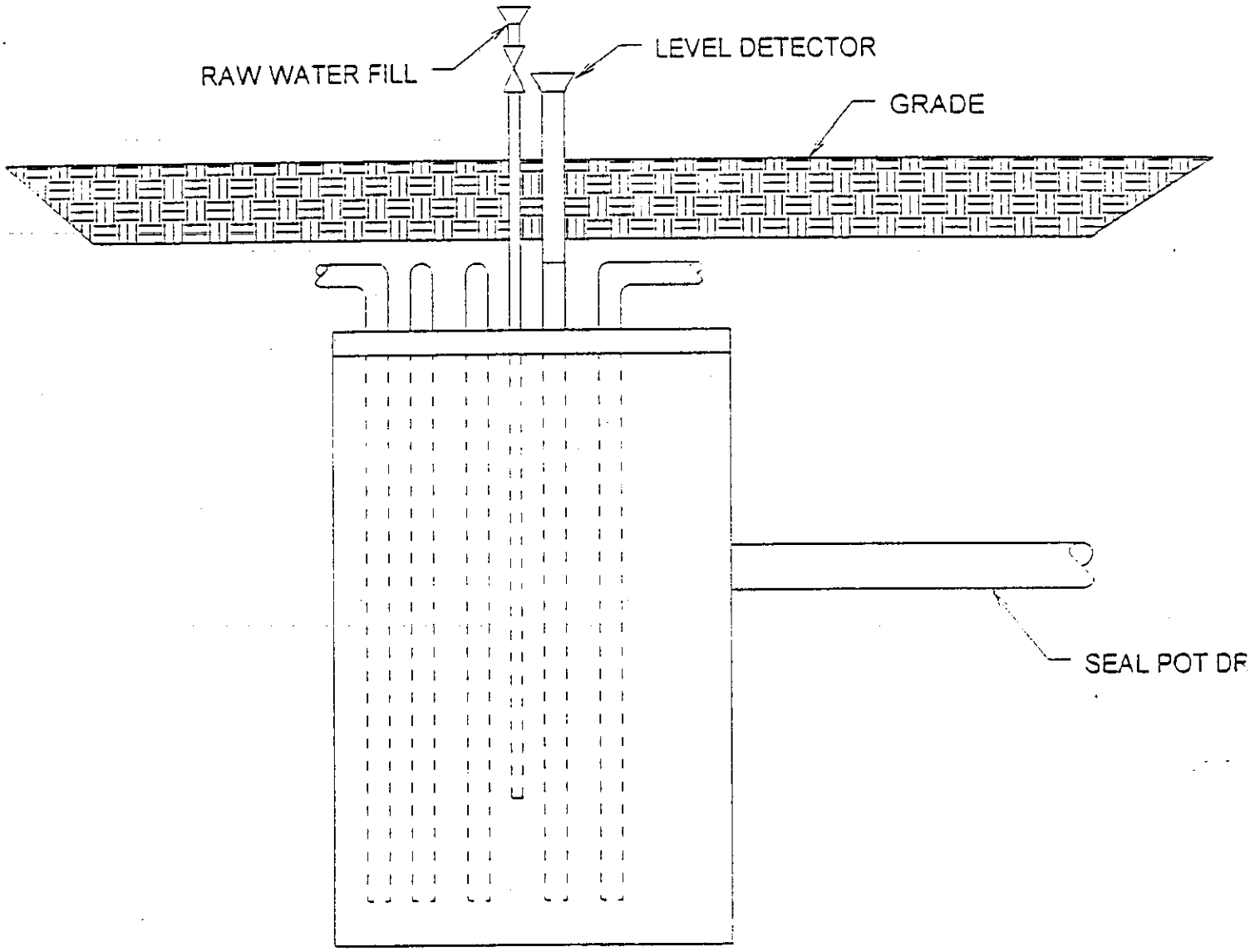
There are two seal pots associated with 241-SY. One supports the K1 exhaust system and the other supports the primary exhaust vent header. Tank farm 241-AN also has two seal pots. One supports the K1-1 and the K1-2 exhausters and the other one is for the K1 de-entrainer. Tank farm 241-AW only has one seal pot that supports the K1-1 and K1-2 exhausters, as well as the de-entrainer. Tank farm 241-AP only contains one seal pot that supports the K1-1 and K1-2 exhausters. To support the 241-AY & AZ tank farms, two exhausters are used. The first one is the 241-A-702 exhauster and the other is a 4000 cfm exhauster. The 241-A-702 exhauster has two seal pots, one for the stream heater and the other for the filter condensate. The 4000 cfm exhauster only uses one seal pot.

7.6.2 Compliance Evaluation

7.6.2.1 Leak Detection Only two seal pots are provided with leak detection. These are the 241-AP-K1-1 & K1-2 seal pot, and the 241-A-702 steam heater seal pot. The 241-AP-K1-1 & K1-2 seal pot is located inside a vault. The vault has sloped floors and a sump to aid in the collection and detection of leaks. The vault also contains a leak detector and a sump pump. Which allows leaks to be detected within 24-hours. The waste can also be removed within 24-hours. The 241-A-702 steam heater seal pot is inside a ventilation building. The seal pot is on the "hot" side of the building, which means the building is not accessed routinely due to radiation levels. The hot side of the building is provided with a leak detector on the floor. The floor of this building is not sloped nor do the floor drains appear to be plugged. The floor drains and the 241-A-702 steam heater seal pot flow to the 241-A-702 primary seal pot.

Both of the 241-SY seal pots are above grade. However, the drain lines are below grade. The inlet pipes on the 241-AN-K1-1 & K1-2 seal pots and the 4000 CFM exhauster seal pot are above grade. The remaining seal pots are underground and lack leak detection.

Figure - 12 Typical Seal Pot



7.6.2.1.1 **Recommended Actions** The recommended action for the below ground seal pots that are not provided with leak detection is to replace the existing seal pot with a complaint design. For the aboveground seal pots, existing ventilation surveillance procedures will be revised to incorporate a daily inspection of the above ground portions of the seal pots. For seal pots, where only a portion of the system is below grade (i.e., the drain lines), the underground portion will require upgrades but the aboveground portions can remain.

The leak detection on the 241-AP-K1-1 & K1-2 seal pot leak detection must be verified as operational.

Floor drain plugs shall be installed in the 241-A-702 steam heater building, so that the leak detector can be activated.

7.6.2.1.2 **Justification** No justification is required since the regulations will be met.

7.6.2.2 **Secondary Containment** Only one seal pot is provided with secondary containment. This is the 241-AP-K1-1 & K1-2 seal pot. The 241-AP-K1-1 & K1-2 seal pot is located inside a concrete vault. The vault is designed to contain 100% of the volume of the lines that access the pits. The vault is designed to prevent run-on or infiltration of precipitation, and is also designed with sufficient capacity to contain precipitation from a 25-year, 24-hour rainfall event. The interior of the vault was constructed with an impermeable interior coating, normally Amercoat #33. Chemical-resistant water stops are not in place at all joints. Due to the soil conditions and the deep water table in the 200 Area, the process pits are not subject to exterior hydraulic pressures.

The 241-A-702 steam heater seal pot is located inside a ventilation building, this building was not designed as secondary containment. The building is not routinely accessible due to high radiation levels, which prevents daily inspections. The floor is coated with a protective coating, but lacks chemical-resistent water stops, and the floor is not sloped.

Both of the 241-SY seal pots are above grade, with the exception of the drain line. The inlet pipes on the 241-AN-K1-1 & K1-2 seal pot and the 4000 CFM exhauster seal pot are above grade. The remaining seal pots are underground and lack secondary containment.

Seal pots that are part of the DST secondary containment system contain a water seal, as an engineered barrier. As secondary containment, all liquids must be removed within 24 hours of detection.

7.6.2.2.1 **Recommended Actions** The recommended action for the below ground seal pots is to replace the existing seal pots with a complaint design. For the above ground seal pots, existing ventilation surveillance procedures will be revised to incorporate a daily inspection of the aboveground portions of the seal pots. For seal pots where only a portion of the system is below grade (i.e., the drain lines) the underground portion will require upgrades but the above ground portions can remain.

The 241-A-702 seal pot must be provided with secondary containment, or evaluate to possibility of daily inspections.

The 241-AP-K1-1 & K1-2 seal pot must be provided with a steel liner.

The possibility of obtaining a variance will be investigated to allow continued use of the water seal.

7.6.2.2.2 **Justification** No justification is required since the regulations will be met.

8.0 UP-GRADE AGREEMENTS

8.1 TRANSFER PIPING

The cross site transfer piping will be upgraded/replaced by project W-058, construction completion date of May 1997.

The transfer lines between B-Plant and diversion box 241-AR-151 will be upgraded/replaced by project W-028, construction completion date of May 1997.

The transfer lines between 219-S and 244-S DCRT will be upgraded/replaced by project W-087, construction completion date of September 1996.

The remaining transfer piping will be upgraded by project W-314 as the project defines a need for the piping. The planned completion date for project W-314 is 2003. However, this is a projected date. The project has not been validated which means the scope of the project is not finalized. Based on the project definition the date may change.

A project for installing the cathodic protection in the 241-SY tank farm has not been identified. Efforts will be made to incorporate this into a project.

Tank Farm Engineering is evaluating the operability of the leak detection systems as the transfer lines are used.

8.2 DIVERSION BOXES AND VALVE PITS

The existing diversion boxes will be upgraded/replaced by project W-314 as the project defines a need for the diversion boxes. The planned completion date for project W-314 is 2003. However, this is a projected date. The project has not been validated which means the scope of the project is not finalized. Based on the project definition the date may change. Project W-211 will be upgrading valve pits 241-SY-A & B, 241-AW-A & B, and 241-AN-A & B. There is no project currently planned that will upgrade the remaining pits.

Tank Farm Engineering is evaluating the operability of the leak detection systems as diversion boxes and valve pits are needed.

8.3 TANK PROCESS PITS

As part of the initial tank retrieval systems (project W-211), upgrades will be performed to the ten DST identified for retrieval. These tanks are 101-SY, 103-SY, 101-AW, 103-AN, 104-AN, 105-AN, 106-AN, 102-AY, 102-AZ, and 101-AP. The scheduled construction completion of the final of these ten tanks is June, 2010. This date is based on conceptual project information. The upgrades are limited to providing stainless steel liners in the central pump pits, and intrusion resistent cover blocks. Other pits will be evaluated for upgrading, based on the identified future use of the pit.

8.4 DOUBLE CONTAINED RECEIVER TANKS

There are currently no projects planned for upgrading the 244-A DCRT. Three options are being evaluated, one option is adding the 244-A upgrades to the scope of project W-314. A second option is creating a new project to perform the upgrades. And the final option is provide a new route for the cross site transfer line, so that the end point is a compliant unit. These options are being evaluated to identify the appropriate option.

8.5 CLEANOUT BOXES

There are currently no projects planned for upgrading the COB's. There are efforts to evaluate whether to add this to the scope of an existing project or create a new project.

8.6 SEAL POTS

The seal pots associated with the aging waste tanks (241-AY & AZ) are being upgraded/replaced by project W-030, construction completion date of October 1996.

The remaining seal pot upgrades are included in the scope of project W-314. The planned completion date for project W-314 is 2003. However, this is a projected date. The project has not been validated which means the scope of the project is not finalized. Based on the project definition the date may change.

9.0 REFERENCES

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State of Washington, Washington Administrative Code, Chapter 173-303, "Dangerous Waste Regulations," December, 1993.

WHC-SD-WM-EV-040, Rev. 1, "Double-Shell Tank Ancillary Equipment Secondary Containment Evaluation," September 10, 1990.

WHC-SD-WM-ES-156, Rev. 1, "Catch Tanks Environmental Upgrade for Tank Farms." May 8, 1991.

WHC-SD-WM-ES-157, Rev. 1, "Engineering Study - Seal Pots and Associated Drain Piping Environmental Upgrades for Tank Farms," June 20, 1990.

WHC-SD-WM-ES-159, Rev. 1, "Engineering Study - Diversion Boxes Environmental Upgrade for Tank Farms," May 8, 1991.

WHC-SD-WM-ES-160, Rev. 0, "Transfer Lines Environmental Upgrade for Tank Farms," May, 1990.

WHC-SD-W314A-ES-001 Rev. 0, "Project W-314A Tank Farm Integrated Instrumentation System Upgrade Engineering Study," January 1994.

WHC-EP-0392, "Tank Farm Upgrades Program Plan," June 1991.

FDM-T-400-00001, Rev. A-0, "Westinghouse Hanford Company Facility Description Manual 244-S Catch Station," August 16, 1983.

DOE/RL-90-39, Rev. 0, "Double-Shell Tank System Dangerous Waste Permit Application," June 1991.

WHC-SD-W211-CDR-002, Rev. 0, "Conceptual Design Report Initial Tank Retrieval Systems Project W-211," February 1994.

APPENDIX A

ACTIVE DST TRANSFER LINES

241-AN PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Protection	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
CENTRAL PUMP PIT 101-AN-01A						
2 IN. SL-161	M-26a	PIT 01A	H-2-91040	FROM VALVE PIT AN-B	H-2-71978,71984	
3 IN. SN-261	M-26a	PIT 01A	H-2-91040	FROM VALVE PIT AN-B	H-2-71978,71984	
SALTWELL RECEIVER PIT 101-AN-01E						
3 IN. SN-247	N O	PIT 01E	H-2-91040	FROM VALVE PIT AX-B	H-2-71978	ISOLATE *1
CENTRAL PUMP PIT 102-AN-02A						
2 IN. SL-162	M-26a	PIT 02A	H-2-91040	FROM VALVE PIT AN-B	H-2-71978,71984	
3 IN. SN-262	M-26a	PIT 02A	H-2-91040	FROM VALVE PIT AN-B	H-2-71978,71984	
CENTRAL PUMP PIT 103-AN-03A						
2 IN. SL-163	M-26a	PIT 03A	H-2-91040	FROM VALVE PIT AN-B	H-2-71978,71984	
3 IN. SN-262	M-26a	PIT 03A	H-2-91040	FROM VALVE PIT AN-B	H-2-71978,71984	
CENTRAL PUMP PIT 104-AN-04A						
2 IN. SL-164	M-26a	PIT 04A	H-2-91040	FROM VALVE PIT AN-A	H-2-71978,71984	
3 IN. SN-264	M-26A	PIT 04A	H-2-91040	FROM VALVE PIT AN-A	H-2-71978,71984	
CENTRAL PUMP PIT 105-AN-05A						
2 IN. SL-165	M-26a	PIT 05A	H-2-91040	FROM VALVE PIT AN-A	H-2-71978,71984	
3 IN. SN-265	M-26a	PIT 05A	H-2-91040	FROM VALVE PIT AN-A	H-2-71978,71984	
CENTRAL PUMP PIT 106-AN-06A						
2 IN. SL-166	M-26a	PIT 06A	H-2-91040	FROM VALVE PIT AN-A	H-2-71978,71984	
3 IN. SN-266	M-26a	PIT 06A	H-2-91040	FROM VALVE PIT AN-A	H-2-71978,71984	
CENTRAL PUMP PIT 107-AN-07A						
2 IN. SL-167	M-26a	PIT 07A	H-2-91040	FROM VALVE PIT AN-A	H-2-71978,71984	
3 IN. SN-267	M-26a	PIT 07A	H-2-91040	FROM VALVE PIT AN-A	H-2-71978,71984	

241-AN PROCESS PITS CONTINUED

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
241-AN VALVE PIT A						
2 IN. SL-165	M-26a	PIT 05A	H-2-91040	TO CENTRAL PUMP PIT 05A	H-2-71978	
3 IN. SN-265	M-26a	PIT 05A	H-2-91040	TO CENTRAL PUMP PIT 05A	H-2-71978	
2 IN. SL-166	M-26a	PIT 06A	H-2-91040	TO CENTRAL PUMP PIT 06A	H-2-71978	
3 IN. SN-266	M-26a	PIT 06A	H-2-91040	TO CENTRAL PUMP PIT 06A	H-2-71978	
2 IN. SL-167	M-26a	PIT 07A	H-2-91040	TO CENTRAL PUMP PIT 07A	H-2-71978	
3 IN. SN-267	M-26a	PIT 07A	H-2-91040	TO CENTRAL PUMP PIT 07A	H-2-71978,71980	
3 IN. SN-268	M-26a	VP AN-A	H-2-71984	CONNECTS VALVE PIT AN-B	H-2-71978,71980	LEAK DETECTION *3
2 IN. SL-168	M-26a	VP AN-A	H-2-71984	CONNECTS VALVE PIT AN-B	H-2-71978,71980	LEAK DETECTION *3
2 IN. SL-164	M-26a	PIT 04A	H-2-91040	TO CENTRAL PUMP PIT 04A	H-2-71978,71980	
3 IN. SN-264	M-26A	PIT 04A	H-2-91040	TO CENTRAL PUMP PIT 04A	H-2-71978,71984	
241-AN VALVE PIT B						
2 IN. SL-161	M-26a	PIT 01A	H-2-91040	TO CENTRAL PUMP PIT 01A	H-2-71978,71984	
3 IN. SN-261	M-26a	PIT 01A	H-2-91040	TO CENTRAL PUMP PIT 01A	H-2-71978,71984	
2 IN. SL-162	M-26a	PIT 02A	H-2-91040	TO CENTRAL PUMP PIT 02A	H-2-71978,71984	
3 IN. SN-262	M-26a	PIT 02A	H-2-91040	TO CENTRAL PUMP PIT 02A	H-2-71978,71984	
2 IN. SL-163	M-26a	PIT 03A	H-2-91040	TO CENTRAL PUMP PIT 03A	H-2-71978,71984	
3 IN. SN-263	M-26a	PIT 0A	H-2-91040	TO CENTRAL PUMP PIT 03A	H-2-71978,71984	
2 IN. SL-168	M-26a	VP AN-B	H-2-71989	CONNECTS VALVE PIT AN-A	H-2-71978,71984	LEAK DETECTION *3
3 IN. SN-268	M-26a	VP AN-B	H-2-71989	CONNECTS VALVE PIT AN-A	H-2-71978,71984	LEAK DETECTION *3
2 IN. SL-160	M-26a	VP AN-B	H-2-91040	FROM CENTRAL PUMP PIT 102-AZ-02A	H-2-71978,71984	LEAK DETECTION *3
3 IN. SN-260	M-26a	VP AN-B	H-2-91040	FROM SLUICE PIT 102-AZ-02B	H-2-71978,71984	LEAK DETECTION *3

241-AP PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
CENTRAL PUMP PIT 101-AP-01A						
3 IN. SN-611	M-26A	PIT 01A	H-2-94080	FROM AP VALVE PIT	H-2-90526	
2 IN. SL-511	M-26A	PIT 01A	H-2-94080	FROM AP VALVE PIT	H-2-90526	
CENTRAL PUMP PIT 102-AP-02A						
3 IN. SN-612	M-26A	PIT 02A	H-2-94080	FROM AP VALVE PIT (PSW)	H-2-90526	
2 IN. SL-512	M-26A	PIT 02A	H-2-94080	FROM AP VALVE PIT (PSW)	H-2-90526	
2 IN. SN-622	M-26A	PIT 02D	H-2-94080	FROM FEED PUMP PIT 02D (PSW)	H-2-76475	
FEED PUMP PIT 102-AP-02D						
2 IN. SN-621	M-26A	PIT 02D	H-2-94080	TO GROUT (PSW)	H-2-76475, 76473	
2 IN. SN-622	M-26A	PIT 02D	H-2-94080	TO CENTRAL PUMP PIT 02A (PSW)	H-2-76475, 76473	
102-AP SIDE FILL						
3 IN. SN-650	M-26A	102-AP	H-2-90526	FROM VALVE PIT A-B		LEAK DETECTION *3
CENTRAL PUMP PIT 103-AP-03A						
3 IN. SN-613	M-26A	PIT 03A	H-2-94080	FROM AP VALVE PIT	H-2-90526	
2 IN. SL-513	M-26A	PIT 03A	H-2-94080	FROM AP VALVE PIT	H-2-90526	
CENTRAL PUMP PIT 104-AP-04A						
3 IN. SN-614	M-26A	PIT 04A	H-2-94080	FROM AP VALVE PIT (PSW)	H-2-90526	
2 IN. SL-514	M-26A	PIT 04A	H-2-94080	FROM AP VALVE PIT (PSW)	H-2-90526	
CENTRAL PUMP PIT 105-AP-05A						
3 IN. SN-615	M-26A	PIT 05A	H-2-94080	FROM AP VALVE PIT (DSSF)	H-2-90526	
2 IN. SL-515	M-26A	PIT 05A	H-2-94080	FROM AP VALVE PIT (DSSF)	H-2-90526	
CENTRAL PUMP PIT 106-AP-06A						
3 IN. SN-616	M-26A	PIT 06A	H-2-94080	FROM AP VALVE PIT (DSSF)	H-2-90526	
2 IN. SL-516	M-26A	PIT 06A	H-2-94080	FROM AP VALVE PIT (DSSF)	H-2-90526	
CENTRAL PUMP PIT 107-AP-07A						
3 IN. SN-617	M-26A	PIT 07A	H-2-94080	FROM AP VALVE PIT	H-2-90526	
2 IN. SL-517	M-26A	PIT 07A	H-2-94080	FROM AP VALVE PIT	H-2-90526	

241-AP PROCESS PITS CONTINUED

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
CENTRAL PUMP PIT 108-AP-08A						
3 IN. SN-618	M-26A	PIT 08A	H-2-94080	FROM AP VALVE PIT	H-2-90526	
2 IN. SL-518	M-26A	PIT 08A	H-2-94080	FROM AP VALVE PIT	H-2-90526	
241-AP VALVE PIT						
3 IN. SN-609	M-26A	VP AP	H-2-94080	FROM 241-AW PIT 02A (PSW)	H-2-90526, 90448	LEAK DETECTION *3
3 IN. SN-610	M-26A	VP AP	H-2-94080	FROM 241-AW PIT 02A (PSW)	H-2-90526, 90448	LEAK DETECTION *3
3 IN. SN-611	M-26A	PIT 01A	H-2-94080	TO CENTRAL PUMP PIT 01A	H-2-90526, 90448	
3 IN. SN-612	M-26A	PIT 02A	H-2-94080	TO CENTRAL PUMP PIT 02A	H-2-90526, 90448	
3 IN. SN-613	M-26A	PIT 03A	H-2-94080	TO CENTRAL PUMP PIT 03A	H-2-90526, 90448	
3 IN. SN-614	M-26A	PIT 04A	H-2-94080	TO CENTRAL PUMP PIT 04A	H-2-90526, 90448	
3 IN. SN-615	M-26A	PIT 05A	H-2-94080	TO CENTRAL PUMP PIT 05A	H-2-90526, 90448	
3 IN. SN-616	M-26A	PIT 06A	H-2-94080	TO CENTRAL PUMP PIT 06A	H-2-90526, 90448	
3 IN. SN-617	M-26A	PIT 07A	H-2-94080	TO CENTRAL PUMP PIT 07A	H-2-90526, 90448	
3 IN. SN-618	M-26A	PIT 08A	H-2-94080	TO CENTRAL PUMP PIT 08A	H-2-90526, 90448	
2 IN. SL- 509	M-26A	VP AP	H-2-94080	TO AW-B VALVE PIT	H-2-90526, 90448	LEAK DETECTION *3
2 IN. SL-510	M-26A	VP AP	H-2-94080	TO AW-A VALVE PIT	H-2-90526, 90448	LEAK DETECTION *3
2 IN. SL-511	M-26A	PIT 01A	H-2-94080	TO CENTRAL PUMP PIT 01A	H-2-90526, 90448	
2 IN. SL-512	M-26A	PIT 02A	H-2-94080	TO CENTRAL PUMP PIT 02A	H-2-90526, 90448	
2 IN. SL-513	M-26A	PIT 03A	H-2-94080	TO CENTRAL PUMP PIT 03A	H-2-90526, 90448	
2 IN. SL-514	M-26A	PIT 04A	H-2-94080	TO CENTRAL PUMP PIT 04A	H-2-90526, 90448	
2 IN. SL-515	M-26A	PIT 05A	H-2-94080	TO CENTRAL PUMP PIT 05A	H-2-90526, 90448	
2 IN. SL-516	M-26A	PIT 06A	H-2-94080	TO CENTRAL PUMP PIT 06A	H-2-90526, 90448	
2 IN. SL-517	M-26A	PIT 07A	H-2-94080	TO CENTRAL PUMP PIT O7A	H-2-90526, 90448	
2 IN. SL-518	M-26A	PIT 08A	H-2-94080	TO CENTRAL PUMP PIT 08A	H-2-90526, 90448	

241-AW PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawing	Corrective Action / Comments
CENTRAL PUMP PIT 101-AW-01A						
3 IN. SN-261	M-26A	PIT 01A	H-2-91033	FROM VALVE PIT AW-A (DSSF)	H-2-70388	
2 IN. SL-161	M-26A	PIT 01A	H-2-91033	FROM VALVE PIT AW-A (DSSF)	H-2-70388	
2 IN. PW-461	M-26A	PIT 01B	H-2-91033	FROM LEAK DETECTOR PIT 01C (DSSF)	H-2-70388	
CENTRAL PUMP PIT 102-AW-02A						
3 IN. SN-262	M-26A	PIT 02A	H-2-91033	FROM VALVE PIT AW-B (DEFS)	H-2-70388	
3 IN. SN-267	M-26A	PIT 02A	H-2-91033	FROM VALVE PIT AW-A (DEFS)	H-2-70388	LEAK DETECTION *3
3 IN. SN-268	M-26A	PIT 02A	H-2-91033	FROM VALVE PIT AW-B (DEFS)	H-2-70389	LEAK DETECTION *3
3 IN. SN-272	M-26A	PIT 02E	H-2-91033	FROM FEED PUMP PIT 02E (DEFS)	H-2-70404	
2 IN. SL-162	M-26A	PIT 02A	H-2-91033	FROM VALVE PIT AW-B (DEFS)	H-2-70388	
3 IN. SN-609	M-26A	VP AP	NO	FROM VALVE PIT 241-AP	H-2-90543	LEAK DETECTION *3
3 IN. SN-610	M-26A	VP AP	NO	FROM VALVE PIT 241-AP	H-2-90543	LEAK DETECTION *3
FEED PUMP PIT 102-AW-02E						
3 IN. SN-269	M-26A	PIT 02E	H-2-91033	TO EVAPORATOR (DEFS)	H-2-70389	LEAK DETECTION *3
3 IN. SN-270	M-26A	PIT 02E	H-2-91033	TO EVAPORATOR (DEFS)	H-2-70404	LEAK DETECTION *3
3 IN. SN-272	M-26A	PIT 02E	H-2-91033	TO CENTRAL PUMP PIT 02A (DEFS)	H-2-70404	
CENTRAL PUMP PIT 103-AW-03A						
3 IN. SN-263	M-26A	PIT 03A	H-2-91033	FROM VALVE PIT AW-A (DPD)	H-2-70388	
2 IN. SL-163	M-26A	PIT 03A	H-2-91033	FROM VALVE PIT AW-A (DPD)	H-2-70388	
CENTRAL PUMP PIT 104-AW-04A						
3 IN. SN-264	M-26A	PIT 04A	H-2-91033	FROM VALVE PIT AW-B (DPMS)	H-2-70388	
3 IN. SN 274	M-26A	PIT 04A	H-2-77120	FROM VALVE PIT 241-AW-B	H-2-70406	LEAK DETECTION *3
2 IN. SL-164	M-26A	PIT 04A	H-2-91033	FROM VALVE PIT AW-B (DPMS)	H-2-70388	
CENTRAL PUMP PIT 105-AW-05A						
3 IN. SN-265	M-26A	PIT 05A	H-2-91033	FROM VALVE PIT AW-A (DPMT)	H-2-70388	
2 IN. SL-165	M-26A	PIT 05A	H-2-91033	FROM VALVE PIT AW-A (DPMT)	H-2-70388	

241-AW PROCESS PITS CONTINUED

Tank System and Ancillary Piping Identification	Secondary Containement Material**	Lead Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawing	Corrective Action / Comments
CENTRAL PUMP PIT 106-AW-06A						
3 IN. SN-266	M-26A	PIT 06A	H-2-91033	FROM VALVE PIT AW-B (ESS)	H-2-70388	
2 IN. SL-166	M-26A	PIT 06A	H-2-91033	FROM VALVE PIT AW-B (ESS)	H-2-70388	
241-AW VALVE PIT A						
3 IN. SN-220	M-26A	VP AW-A	H-2-91033	TO VALVE PIT A-A	H-2-70423	LEAK DETECTION *3
3 IN. SN-261	M-26A	PIT 01A	H-2-91033	TO CENTRAL PUMP PIT 01A	H-2-70388	
3 IN. SN-263	M-26A	PIT 03A	H-2-91033	TO CENTRAL PUMP PIT 03A	H-2-70388	
3 IN. SN-265	M-26A	PIT 03A	H-2-91033	TO CENTRAL PUMP PIT 03A	H-2-70388	
3 IN. SN-267	M-26A	PIT 05A	H-2-91033	TO CENTRAL PUMP PIT 05A	H-2-70388	LEAK DETECTION *3
3 IN. SN-271	M-26A	VP AW-B	H-2-91033	FROM VALVE PIT AW-B	H-2-70404	
3 IN. V-021	M-26A	VP AW-A	H-2-91033	FROM DIVERSION BOX 241-A-151	H-2-70405	ISOLATE *2, *3
2 IN. SL-161	M-26A	PIT 01A	H-2-91033	TO CENTRAL PUMP PIT 01A	H-2-70388	
2 IN. SL-163	M-26A	PIT 03A	H-2-91033	TO CENTRAL PUMP PIT 03A	H-2-70388	
2 IN. SL-165	M-26A	PIT 05A	H-2-91033	TO CENTRAL PUMP PIT 05A	H-2-70388	
2 IN. SL-168	M-26A	VP AW-A	H-2-91033	FROM EVAPORATOR	H-2-70398	LEAK DETECTION *3
2 IN. SL-169	M-26A	VP AW-B	H-2-91033	FROM VALVE PIT AW-B	H-2-70401	
2 IN. SL-510	M-26A	VP AP	N O	VALVE PIT 241-AP	H-2-70387	LEAK DETECTION *3
241-AW VALVE PIT B						
3 IN. SN-219	M-26A	VP AW-B	H-2-91033	FROM VALVE PIT A-B	H-2-70423	LEAK DETECTION *3
3 IN. SN-262	M-26A	PIT 02A	H-2-91033	TO CENTRAL PUMP PIT 02A	H-2-70388	
3 IN. SN-264	M-26A	PIT 04A	H-2-91033	TO CENTRAL PUMP PIT 04A	H-2-70388	
3 IN. SN-266	M-26A	PIT 06A	H-2-91033	TO CENTRAL PUMP PIT 06A	H-2-70388	
3 IN. SN-268	M-26A	PIT 02A	H-2-91033	TO CENTRAL PUMP PIT 02A	H-2-70388	LEAK DETECTION *3
3 IN. SN-271	M-26A	VP AW-B	H-2-91033	FROM VALVE PIT AW-A	H-2-70404	
3 IN. SN-274	M-26A	PIT 04A	H-2-77120	TO PUMP PIT 04A, ADDED IN 1987	H-2-70387	LEAK DETECTION *3
2 IN. SL-162	M-26A	PIT 02A	H-2-91033	TO CENTRAL PUMP PIT 02A	H-2-70388	
2 IN. SL-164	M-26A	PIT 04A	H-2-91033	TO CENTRAL PUMP PIT 04A	H-2-70388	
2 IN. SL-166	M-26A	PIT 06A	H-2-91033	TO CENTRAL PUMP PIT 06A	H-2-70388	
2 IN. SL-167	M-26A	VP AW-B	H-2-91033	FROM EVAPORATOR	H-2-70398	LEAK DETECTION *3
2 IN. SL-169	M-26A	VP AW-B	H-2-91033	FROM VAVE PIT AW-A	H-2-70401	
2 IN. SL-509	M-26A	VP AP	N O	FROM VALVE PIT 241-AP	H-2-70387	LEAK DETECTION *3
3 IN. V-022	M-26A	VP AW-B	H-2-91033	FROM 241-A-151	H-2-70405	ISOLATE *2, *3
3 IN. V-023	M-26A	VP AW-B	H-2-91033	FROM 241-A-151	H-2-70405	ISOLATE *2, *3

241-AY PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
CENTRAL PUMP PIT 101-AY-01A						
3 IN. SL-505	Sch 40 CS	PIT 01A	H-2-91041	FROM AY-01D	H-2-64313	LEAK DETECTION *3
3 IN. 4550	NONE	AZ-152	H-2-91041	FROM AZ-152, TIES INTO PW-4608	H-2-64313	ISOLATE *2
SLUICE PIT 101-AY-01D						
2 IN. SL-504	Sch 40 CS	PIT 02A	H-2-91041	FROM AY-02A	H-2-79780	LEAK DETECTION *3
3 IN. SL-505	Sch 40 CS	PIT 01A	H-2-91041	FROM AY-01A	H-2-79780	LEAK DETECTION *3
101-AY SIDE FILL LINES						
4501/A108	CONCRETE	101-AY	NO	FROM AX-152	H-2-64409	ISOLATE *1
4502/B108	CONCRETE	101-AY	NO	FROM AX-152	H-2-64409	ISOLATE *1
4503	CONCRETE	101-AY	NO	FROM AX-155	H-2-64409	ISOLATE *1
CENTRAL PUMP PIT 102-AY-02A						
2 IN. SL-503	Sch 40 CS	PIT 02A	H-2-91041	FROM AY-02D	H-2-70781	LEAK DETECTION *3
2 IN. SL-504	Sch 40 CS	PIT 02A	H-2-91041	FROM AY-01D	H-2-70781	LEAK DETECTION *3
PUMP PIT 102-AY-02D						
2 IN. SL-502	Sch 40 CS	PIT 02D	H-2-91041	FROM VALVE PIT AX-B	H-2-70781	LEAK DETECTION *3
2 IN. SL-503	Sch 40 CS	PIT 02A	H-2-91041	FROM PIT AY-02A	H-2-70781	LEAK DETECTION *3
3 IN. V-720	Sch 40 CS	AR-151	H-2-91043	FROM AR-151	H-2-91041	LEAK DETECTION *3
102-AY SIDE FILL LINES						
4504/A106	CONCRETE	102-AY	NO	FROM AX-152	H-2-64409	ISOLATE *1
4505/B106	CONCRETE	102-AY	NO	FROM AX-152	H-2-64409	ISOLATE *1
4506	CONCRETE	102-AY	NO	FROM AX-155	H-2-64409	ISOLATE *1

241-AZ PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
CENTRAL PUMP PIT 101-AZ-01A						
3 IN. 4607	M-26A	PIT 01A	H-2-91040	FROM AZ-152	H-2-68420	
4 IN. 4621	Sch 40 CS	PIT 01A	H-2-91040	FROM AZ-01C	H-2-68420	
4 IN. PSW-4622	M-26	PIT 01A	H-2-91040	FROM AZ-01B	H-2-68420	
2 IN. PSW-4623	M-26	PIT 01A	H-2-91040	FROM AZ-01F	H-2-68420	
4 IN. PSW-D603	CS	PIT 01A	H-2-91040	FROM AZ-152	H-2-68420	
2 IN. SL-501	M-26	PIT 01A	H-2-91040	FROM AZ-02A	H-2-68420	LEAK DETECTION *3
SLUICE PIT 101-AZ-01B						
4 IN. PSW-4622	M-26	PIT 01A	H-2-91040	FROM AZ-01A	H-2-68420	
6 IN. PSW-S608	M-26	PIT 01B	H-2-91040	TO AZ-152	H-2-68413	
SLUICE PIT 101-AZ-01C						
4 IN. 4621	Sch 40 CS	PIT 01A	H-2-91040	FROM AZ-01A	H-2-91040	
2 IN. SN-601	Sch 40 CS	PIT 01C	H-2-91040	FROM AZ-02B	H-2-70782	LEAK DETECTION *3
6 IN. PSW-S609	M-26	PIT 01C	H-2-91040	FROM AZ-152	H-2-68313	
6 IN. D602	CONCRETE	PIT 02A	H-2-72531	FROM AZ-152	H-2-68354	ISOLATE *1
101-AZ SIDE FILL LINES						
4 IN. PW-4508	M-26/CONC	TK 101-AZ	H-2-91040	FROM AX-152	H-2-68413	ISOLATE *1
4 IN. PW-4509	M-26/CONC	TK 101-AZ	H-2-91040	FROM AX-155	H-2-68413	ISOLATE *1
CENTRAL PUMP PIT 102-AZ-02A						
3 IN. 4606	M-26	PIT 02A	H-2-72531	FROM AZ-152	H-2-68354	
6 IN. D602	CONCRETE	PIT 02A	H-2-72531	FROM AZ-152	H-2-68354	ISOLATE *1
2 IN. SL-160	M-26A	VP AN-B	H-2-91040	FROM VALVE PIT AN-B	H-2-70765	LEAK DETECTION *3
2 IN. SL-500	M-26A	PIT 02A	H-2-91040	FROM VALVE PIT AX-A	H-2-70765	LEAK DETECTION *3
2 IN. SL-501	M-26A	PIT 01A	H-2-91040	FROM AZ-01A	H-2-68413	LEAK DETECTION *3
4 IN. S607	Sch 40 CS	PIT 02B	H-2-91046	FROM 241-AZ-02B	H-2-68354	
4 IN. PSW-D609	M-26A	PIT 02A	H-2-91040	FROM AZ-02C	H-2-67357	

241-AZ PROCESS PITS CONTINUED

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
102-AZ-02B						
4 IN. S607	Sch 40 CS	AZ-02B	H-2-91040	FROM AZ-02A	H-2-98359	
2 IN. SN-260	M-26A	AN-B	H-2-91040	FROM VALVE PIT AN-A	H-2-70765	LEAK DETECTION *3
2 IN. SN-600	Sch 40 CS	AZ-02B	H-2-72531	FROM VALVE PIT AX-A	H-2-70782	LEAK DETECTION *3
2 IN. SN-601	Sch 40 CS	AZ-01C	H-2-91040	FROM AZ-01C	H-2-70781	LEAK DETECTION *3
6 IN. PSW-S603	CONCRETE	AZ-02B	H-2-72531	FROM AZ-152	H-2-68359	ISOLATE *1
3 IN. SN-260	M-26A	AN-B	H-2-91040	FROM VALVE PIT AN-B	H-2-71978	LEAK DETECTION *3
PUMP PIT 102-AZ-02C						
6 IN.PSW-S605	CONCRETE	PIT 02C	H-2-72531	FROM AZ-152	H-2-68359	ISOLATE *1
4 IN. PSW D608	M-26	PIT 02A	H-2-91040	FROM AZ-02A	H-2-67357	
102-AZ SIDE FILL LINES						
4 IN. PW-4511	CONCRETE	TK 102-AZ	NO	FROM AX-152	H-2-68335	ISOLATE *1
4 IN. PW-4512	CONCRETE	TK 102-AZ	NO	FROM AX-155	H-2-68355	ISOLATE *1
AZ-152 DIVERSION BOX						
6 IN. PSW S603	CONCRETE	AZ-02B	H-2-72531	FROM AZ-02B	H-2-68359	ISOALTE *1
6 IN. PSW S605	CONCRETE	AZ-02C	H-2-72531	FROM AZ-02C	H-2-68359	ISOLATE *1
6 IN. PSW S608	CS	AZ-01B	H-2-91040	FROM AZ-01B	H-2-68313	
6 IN. PSW S609	CS	AZ-01C	H-2-91041	FROM AZ-01C	H-2-68313	
6 IN. PSW D602	CONCRETE	AZ-02A	H-2-72531	FROM AZ-02A	H-2-68359	ISOLATE *1
6 IN. PSW D603	CS	AZ-01A	H-2-91040	FROM AZ-01A	H-2-68313	
3 IN.PW 4605	CONCRETE	DB AZ-151	NO	TO AZ-151	H-2-68358	ISOLATE *1
3 IN.PW 4606	CONCRETE	AZ-02A	H-2-72531	FROM AZ-02A	H-2-68359	ISOLATE *1
3 IN.PW 4607	M-26	AZ-01A	H-2-91040	FROM AZ-01A	H-2-68312	
3 IN.PW 4608	CONCRETE	DB AZ-152	H-2-91041	FROM AZ-01A	H-2-68358	ISOLATE *1
3 IN. V-719	Sch 40 CS	DB AZ-152	H-2-76579	FROM AZ-151	H-2-68370	LEAK DETECTION *3

MISCELLANEOUS EAST AREA PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
241-AR-151 DIVERSION BOX						
3 IN. NHW V714	M-9	AR-151	H-2-91042	FROM 202-A PUREX	H-2-90353	LEAK DETECTION *3
3 IN. NHW V714	M-26A	AX-155	H-2-91042	FROM AX-155	H-2-90353	ISOLATE *2, *3
3 IN. NHW V718	M-25A/CONC	244-AR	NO	FROM 244-AR VAULT CELL 3	H-2-90353	ISOLATE *1
3 IN. NHW V716	M-9	244-AR	H-2-91043	FROM 244-AR VAULT CELL 1	H-2-90353	ISOLATE *2, *3
3 IN. NHW V720	M-26A	AR-151	H-2-91043	FROM AY-02D	H-2-76560	LEAK DETECTION *3
204-AR UNLOADING FACILITY						
3 IN. LIQW 702	750-M-26A	VP A-A	H-2-91042	TO VALVE PIT A-A	H-2-91042	
241-A-A VALVE PIT						
2 IN. SL-101	M-26	VP AX-A	H-2-91042	FROM VALVE PIT AX-A	H-2-69186	LEAK DETECTION *4
2 IN. SL-104	M-26	VP A-A	H-2-91042	FROM VALVE PIT A-B	H-2-69186	
2 IN. SL-114	M-26	VP A-A	H-2-91042	FROM 242-A	H-2-69186	LEAK DETECTION *4
3 IN. SN-201/214	M-26	VP AX-A	H-2-91041	FROM VALVE PIT AX-A	H-2-69186	LEAK DETECTION *4
3 IN. SN-204	M-26	VP A-A	H-2-91042	FROM VALVE PIT A-B	H-2-69186	
3 IN. SN-215	M-26A	244-A	H-2-91042	FROM 244-A	H-2-90370	LEAK DETECTION *4
3 IN. SN-220	M-26	VP AW-A	H-2-91042	FROM VALVE PIT AW-A	H-2-69186	LEAK DETECTION *3
3 IN. 4004	M-26A/CONC	VP A-A	H-2-91042	FROM 202-A PUREX	H-2-90370	ISOLATE *1
3 IN. LIQW 702	750-M-26A	VP A-A	H-2-91042	FROM 204-AR UNLOADING FACILITY	H-2-91042	
241-A-B VALVE PIT						
2 IN. SL-100	M-26	VP AX-B	H-2-91042	FROM VALVE PIT AX-B	H-2-69186	LEAK DETECTION *4
2 IN. SL-113	M-26	VP A-B	H-2-91042	FROM 242-A	H-2-69186	LEAK DETECTION *4
3 IN. SN-213/200	M-26	VP AX-B	H-2-91042	FROM VALVE PIT AX-B	H-2-69186	LEAK DETECTION *4
3 IN. SN-219	M-26	VP AW-B	H-2-91042	FROM VALVE PIT AW-B	H-2-69186	LEAK DETECTION *3
3 IN. SN-216	M-26A	VP A-B	H-2-91042	FROM 244-A	H-2-90370	LEAK DETECTION *4
3 IN. SN-204	M-26	VP A-A	H-2-91042	FROM VALVE PIT A-A	H-2-69186	
3 IN. SN-104	M-26	VP A-A	H-2-91042	FROM VALVE PIT A-A	H-2-69186	
3 IN. 4001	M-26A/CONC	VP A-B	H-2-91042	FROM 202-A PUREX	H-2-90370	ISOLATE *1
2 IN. SL-106	M-26	PIT 02D	H-2-69188	FROM TANK 102-A-02D	H-2-69188	ISOLATE *2
2 IN. SL-102	M-26	PIT 06D	H-2-69188	FROM TANK 106-A-06D	H-2-69188	ISOLATE *2
2 IN. SL-105	M-26	PIT 03D	H-2-69188	FROM TANK 103-A-03D	H-2-69188	ISOLATE *2
SL-202	M-26	PIT 06C	H-2-69188	FROM TANK 106-A-06C	H-2-69188	ISOLATE *2
SL-205	M-26	PIT 03C	H-2-69188	FROM TANK 103-A-03C	H-2-69188	ISOLATE *2
3 IN. SL-650	M-26A/CONC	102-AP	H-2-90526	TO TANK 102-AP SIDE FILL		ISOLATE *1, *3

MISCELLANEOUS EAST AREA PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
241-AX-A VALVE PIT						
2 IN. SL-101	M-26	VP AX-A	H-2-91041	FROM VALVE PIT A-A	H-2-69244	LEAK DETECTION *4
2 IN. SL-110	M-26	NONE	H-2-91041	FROM VALVE PIT AX-B	H-2-69244	ISOLATE *1
2 IN. SL-500	M-26A	AZ-02A	H-2-91041	TO TANK 102-AZ-02A	H-2-70763	LEAK DETECTION *3
3 IN. SN-201/214	M-26	VP AX-A	H-2-91041	FROM VALVE PIT A-A	H-2-69244	LEAK DETECTION *4
3 IN. SN-210	M-26	NONE	H-2-91041	FROM VALVE PIT AX-B	H-2-69244	ISOLATE *1
2 IN. SN-600	Sch 40 CS	AZ-02B	H-2-91041	TO TANK 102-AZ-02B	H-2-70767	LEAK DETECTION *3
2 IN. SL-108	M-26	AX-01A	H-2-91041	TO TANK 101-AX-01A	H-2-69244	ISOLATE *2
2 IN. SL-111	M-26	AX-03A	H-2-91041	TO TANK 103-AX-03A	H-2-69244	ISOLATE *2
2 IN. SN-208	M-26	AX-01B	H-2-91041	TO TANK 101-AX-01B	H-2-69244	ISOLATE *2
2 IN. SN-211	M-26	AX-03D	H-2-91041	TO TANK 103-AX-03D	H-2-69244	ISOLATE *2
241-AX-B VALVE PIT						
2 IN. SL-100	M-26	VP AX-B	H-2-91041	FROM VALVE PIT A-B	H-2-69244	LEAK DETECTION *4
2 IN. SL-110	M-26	NONE	H-2-91041	FROM VALVE PIT AX-A	H-2-69244	ISOLATE *1
2 IN. SL-502	Sch 40 CS	AY-02D	H-2-91041	FROM TANK 102-AY-02D	H-2-69245	LEAK DETECTION *3
3 IN. SN-200/213	M-26	VP AX-B	H-2-91041	FROM VALVE PIT A-B	H-2-69244	LEAK DETECTION *4
3 IN. SN-210	M-26	NONE	H-2-91041	FROM VALVE PIT AX-A	H-2-69244	ISOLATE *1
3 IN. SN-247	NO	NONE	H-2-91041	FROM AN-01E	H-2-73749	ISOLATE *1
2 IN. SL-109	M-26	AX-02A	H-2-91041	FROM TANK 102-AX-02A	H-2-69244	ISOLATE *2
2 IN. SL-112	M-26	AX-04A	H-2-91041	FROM TANK 104-AX-04A	H-2-69244	ISOLATE *2
3 IN. SN-209	M-26	AX-02D	NO	FROM TANK 102-AX-02D	H-2-69244	ISOLATE *2
3 IN. SN-212	M-26	AX-04B	H-2-91041	FROM TANK 104-AX-04B	H-2-69244	ISOLATE *2
244-A LIFT STATION						
3 IN. SN-232	M-25	244-A	H-2-72531	241-ER-153	H-2-38225	ISOLATE *2, *4
3 IN. SN-233	M-26A	244-A	H-2-72531	241-ER-153 FAILED LINE	H-2-38225	ISOLATE *2
3 IN. SN-234	M-26A	244-A	H-2-72531	241-ER-153	H-2-38225	ISOLATE *2, *4
3 IN. SN-215	M-26A/CONC	244-A	H-2-72531	FROM VALVE PIT A-A	H-2-38225	ISOLATE *1, *4
3 IN. SN-216	M-26A/CONC	244-A	H-2-72531	FROM VALVE PIT A-B	H-2-38225	ISOALTE *1, *4

MISCELLANEOUS EAST AREA PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
242-A EVAPORATOR						
2 IN. SL-113	M-26	VP A-B	H-2-91042	FROM VALVE PIT A-B	H-2-69186	LEAK DETECTION *4
2 IN. SL-114	M-26	VP A-A	H-2-91042	FROM VALVE PIT A-A	H-2-69186	LEAK DETECTION *4
2 IN. SL-167	M-26A	VP AW-B	H-2-91033	FROM VALVE PIT AW-B	H-2-70398	LEAK DETECTION *3
2 IN. SL-168	M-26A	VP AW-A	H-2-91033	FROM VALVE PIT AW-A	H-2-70398	LEAK DETECTION *3
3 IN. SN-269	M-26A	AW-02E	H-2-91033	FROM TANK 102-AW-02E	H-2-70404	LEAK DETECTION *3
3 IN. SN-270	M-26A	AW-02E	H-2-91033	FROM TANK 102-AW-02E	H-2-70404	LEAK DETECTION *3
202-A PUREX						
3 IN. 4001	M-26A/CONC	VP A-B	H-2-91042	TO VALVE PIT A-B	H-2-90370	ISOLATE *1
3 IN. 4004	M-26A/CONC	VP A-A	H-2-91042	TO VALVE PIT A-A	H-2-90370	ISOLATE *1
3 IN. 4002	CONCRETE	244-AR	H-2-91042	TO 244-AR VAULT	H-2-90370	ISOLATE *1
3 IN. NHW-V714	M-9	AR-151	H-2-91042	TO AR-151	H-2-90353	

241-SY PROCESS PITS

Tank System and Ancillary Piping Identification	Secondary containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / Comments
CENTRAL PUMP PIT 101-SY-01A						
3 IN. SN-278	M-26A	PIT 01A	NONE *5	FROM VALVE PIT SY-B	H-2-37770	
2 IN. SL-178	M-26A	PIT 01A	NONE *5	FROM VALVE PIT SY-B	H-2-37770	
CENTRAL PUMP PIT 102-SY-02A						
3 IN. SN-277	M-26A	PIT 02A	NONE *5	FROM VALVE PIT SY-A	H-2-37770	
2 IN. SN-285	M-26A	PIT 02A	NONE *5	FROM VALVE PIT SY-A	H-2-37770	
3 IN. SN-286	M-26A	PIT 02A	NONE *5	FROM VALVE PIT SY-B	H-2-37770	
3 IN. SN-287	M-26A	PIT 02E	NONE *5	FROM FEED PUMP PIT 02E	H-2-37770	
2 IN. SL-177	M-26A	PIT 02A	NONE *5	FROM VALVE PIT SY-A	H-2-37770	
FEED PUMP PIT 102-SY-02E						
3 IN. SN-283	M-26A	PIT 02E	H-2-91024	FROM 242-S	H-2-37770	ISOLATE *2, *4
3 IN. SN-284	M-26A	PIT 02E	H-2-91024	FROM 242-S	H-2-37770	ISOLATE *2, *4
3 IN. SN-287	M-26A	PIT 02E	NONE *5	TO CENTRAL PUMP PIT 02A	H-2-37770	
CENTRAL PUMP PIT 103-SY-03A						
3 IN. SN-279	M-26A	PIT 03A	NONE *5	FROM VALVE PIT SY-B	H-2-37770	
2 IN. SL-179	M-26A	PIT 03A	NONE *5	FROM VALVE PIT SY-B	H-2-37770	
241-SY VALVE PIT A						
3 IN. SN-275	M-26A	VP S-A	H-2-91024	FROM VALVE PIT S-A	H-2-37770	ISOLATE *2, *4
3 IN. SN-277	M-26A	VP SY-A	NONE *5	TO CENTRAL PUMP PIT SY-02A	H-2-37770	
3 IN. SN-280	M-26A	VP SY-A	NONE *5	FROM VALVE PIT SY-B	H-2-37770	
3 IN. SN-281	M-26A	VP SY-A	H-2-91024	FROM 241-S-152	H-2-37770	ISOLATE *2, *4
3 IN. SN-285	M-26A	VP SY-A	NONE *5	TO CENTRAL PUMP PIT 02A	H-2-37770	
2 IN. SL-175	M-26A	VP SY-A	H-2-91024	FROM 241-S-152	H-2-37770	ISOLATE *2, *4
2 IN. SL-177	M-26A	PIT 02A	NONE *5	TO CENTRAL PUMP PIT 02A	H-2-37770	
2 IN. SL-180	M-26A	VP SY-A	H-2-91024	FROM SY-B VALVE PIT	H-2-37770	
3 IN. V562	M-26A	244-S	H-2-72532	FROM 244-S DCRT	H-2-71051	LEAK DETECTION *3

241-SY PROCESS PITS CONTINUED

Tank System and Ancillary Piping Identification	Secondary Containment Material**	Leak Detection Location	Cathodic Prot.	Waste Route/Characteristics	Reference Drawings & Documentation	Corrective Action / comments
241-SY VALVE PIT B						
3 IN. SN-276	M-26A	VP S-B	H-2-91024	FROM S-B VALVE PIT	H-2-37770	ISOLATE *2, *4
3 IN. SN-278	M-26A	PIT 01B	NONE *5	TO CENTRAL PUMP PIT 01A	H-2-37770	
3 IN. SN-279	M-26A	PIT 03A	NONE *5	TO CENTRAL PUMP PIT 03A	H-2-37770	
3 IN. SN-280	M-26A	VP SY-B	NONE *5	FROM SY-A VALVE PIT	H-2-37770	
3 IN. SN-282	M-26A	VP SY-B	H-2-91024	FROM 241-S-152	H-2-37770	ISOLATE *2, *4
3 IN. SN-286	M-26A	PIT 02A	NONE *5	TO CENTRAL PUMP PIT 02A	H-2-37770	
2 IN. SL-176	M-26A	VP SY-B	H-2-91024	FAILED 10/30/80 (ISO & WEATH. COV.)	H-2-37770	ISOLATE *1, *4
2 IN. SL-178	M-26A	PIT 01A	NONE *5	TO CENTRAL PUMP PIT 01A	H-2-37770	
2 IN. SL-179	M-26A	PIT 03A	NONE *5	TO CENTRAL PUMP PIT 03A	H-2-37770	
2 IN. SL-180	M-26A	VP SY-B	NONE *5	FROM SY-A VALVE PITS	H-2-37770	
3 IN. V561	M-26A	244-S	H-2-72532	FROM 244-S DCRT	H-2-71051	LEAK DETECTION *3

* CORRECTIVE ACTIONS / COMMENTS

1 ISOLATE: PIPE IS NOT PROVIDED WITH ADEQUATE SECONDARY CONTAINMENT
2 ISOLATE OR RE-ROUTE: PIPE IS ROUTED TO AN ISOLATED/INACTIVE FACILITY
3 LEAK DETECTION IS PROVIDED USING CONDUCTIVITY PROBE IN ENCASEMENT
4 LEAK DETECTION IS PROVIDED USING PRESSURE SWITCH IN ENCASEMENT
5 CATHODIC PROTECTION IS DESIGNED PER DRAWING H-2-91024, BUT NOT INSTALLED

** SEE ATTACHED PAGE FOR PIPE CODE DEFINITIONS

PIPE CODES - H-2-31750

The pipe codes listed below correspond to the codes in the pipe surveys in many cases. Some of the pipe codes may be inaccurate because many of the facilities were built by different contractors. If positive confirmation of the pipe material is important, the pipe reference drawing should be checked. The reference drawing will have a project number, and the project construction specifications will have a list of the pipe code and material.

M-1 Black steel per ASTM A53, type E or S, grade B
M-2 Black steel per ASTM A53, on A120, seamless or welded
M-3 Steel sch. 40 per ASTM A53, grade A or ASTM A120-47, seamless or welded
M-4 Carbon steel per ASTM A53, type E or S, grade A or B
M-5 Black steel ASTM A53, or A120, seamless or welded
M-6 Steel sch. 40 per ASTM A53 1" or smaller use sch. 80
M-7 Black steel, per ASTM A53, type E or S, grade A or B
M-8 Stainless steel per ASTM A312-TP 304-L, seamless or welded
M-9 Stainless steel per ASTM A314, grade TP 304-L, seamless or welded
M-10 3/4" - 1 1/2" ASTM A106, grade A, B, or C 2" - 12" A53 type E or S, grade B, A106 grade A, B, or C
M-11 Black steel, sch. 40, ASTM A53 or A120, seamless or welded
M-12 Steel sch. 40, ASTM A53, grade A seamless or welded; or, ASTM A106 grade A
M-13 Steel ASTM A106, grade A, B, or C
M-14 Steel sch. 40, ASTM A53-62T, type S, grade B or ASTM A106-A62T, grade A or B
M-19 2 1/2" or smaller, galvanized steel, sch. 40, ASTM A53 (except type F) or ASTM 120. 3"-24", centrifugally cast iron, ANSI A21.6 or ANSI A21.8 with mechanical joints per ANSI A21.11.
M-20 Above ground 2 1/2" and smaller, galvanized steel, ASTM A53 or ASTM A120. Above ground 3" and larger, underground all sizes, extra-heavy cast iron soil pipe, ASA A40.1
M-21 0 - 4" Stainless steel, sch. 40 Type 304L per HPS-124-M seamless. 6" and larger sch. 10.
M-22 Black wrought iron per ASTM A72
M-25 1" - 6", carbon steel, ASTM A53, type s, grade B. 8"-12" sch. 20.
M-26 4", (0.109" wall) carbon steel per AWWA C202, seamless or electrical resistance welded (carbon content no greater than .30%). 6", (0.135" wall).
M-26a Carbon steel sch. 40, ASTM A-53, type S, grade B, seamless, or ASTM A-106, grade B.
M-31 Stainless steel tubing .035 minimum wall thickness per ASTM A269, grade TP 304-L, annealed and pickled, seamless.
M-32 Virgin polyethylene tubing bundled & sheathed in polyvinyl chloride, Dekoron Prod. Div., Samuel Moore & Co., Dekoron Poly- Cor "D" tubing or approved equal.
M-33 Seamless copper tubing per ASTM B-68-60, bright annealed.

M-34 Stainless steel, sch. 40, alloy 20cb
M-35 Black steel pipe, sch. 40, per ASTM A53 or A120, seamless or welded.
M-36 3" and smaller, galvanized steel, sch. 40, any A53 or A120. 4" and larger - black steel, sch. 40, any ASTM A53 or A106, except acid bessemer.
M-37 Above ground 2 1/2" and smaller, galvanized steel, ASTM A53 or ASTM A120. Above ground 3" and larger, underground all sizes, extra-heavy cast iron soil pipe, ANSI 40.1.
M-38 4"-24", extra strength vitrified clay, ASTM C700, with resilient joining connections, conforming to ASTM C425, Bladding, McBean & Co. "Speed-seal or approved.
M-43 Steel sch. 40, per ASTM A106, grade B or C, or ASTM A53, type E or S, grade B.

APPENDIX B

ACTIVE VALVE PITS AND DIVERSION BOXES

PIT IDENTIFICATION	CONSTRUCTION DATE	CONSTRUCTION MATERIAL	COATING MATERIAL	LEAK DETECTION	PIT DRAIN ROUTE
241-A-A VP	1974	CONCRETE	AMERCOAT #33 & 86	H-2-69205	102-A
241-A-B VP	1974	CONCRETE	AMERCOAT #33 & 86	H-2-69205	102-A
241-AX-A VP	1974	CONCRETE	NONE	H-2-73737	AX SEAL POT TO 102-AY
241-AX-B VP	1974	CONCRETE	NONE	H-2-73737	AX SEAL POT TO 102-AY
241-AN-A VP	1977	CONCRETE	AMERCOAT #33 & 86	H-2-71930	102-AN
241-AN-B VP	1977	CONCRETE	AMERCOAT #33 & 86	H-2-71930	102-AN
241-AP VP	1983	CONC/SS	AMERCOAT #33 & 86	H-2-90487	103-AP-03D
241-AW-A VP	1977	CONCRETE	AMERCOAT #33 & 86	H-2-70348	102-AW-02D
241-AW-B VP	1977	CONCRETE	AMERCOAT #33 & 86	H-2-70348	102-AW-02D
241-AR-151 DB	1984	CONCRETE	UNKNOWN	H-2-90370	244-AR VAULT TANK 001
241-SY-A VP	1977	CONCRETE	AMERCOAT #33 & 86	H-2-37779	102-SY-02D
241-SY-B VP	1977	CONCRETE	AMERCOAT #33 & 86	H-2-37779	102-SY-02D